

PIERS 2000

Progress In Electromagnetics Research Symposium

Program

**July 5–14, 2000
Cambridge, Massachusetts, USA**

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Progress In Electromagnetics Research Symposium
July 5–14, 2000
Cambridge, Massachusetts, USA

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D. R. Jackson	F. Posa	

SYMPORIUM SITE AND OFFICE LOCATION

The 2000 Progress in Electromagnetics Research Symposium will be held on July 5–14, 2000, at the Royal Sonesta Hotel, Cambridge, Massachusetts, USA. During the Symposium, the PIERS Office will be in the University Suite at the Royal Sonesta Hotel (Tel.: 617-491-3600). The PIERS Office will open at 1 PM on Tuesday, July 4, 2000.

REGISTRATION

PIERS technical sessions begin on Wednesday morning, July 5, 2000 at the Royal Sonesta Hotel in Cambridge, Massachusetts, USA. You may register in the PIERS Office at the Royal Sonesta Hotel on Tuesday, July 4, from 1 PM to 7 PM, or during the Symposium from 8 AM through 5 PM, July 5–14.

The on-site registration fee is US\$395. The student registration fee is US\$195; a valid student ID is required. Your badge and Symposium program will be ready for you to pick up at the registration desk during the Symposium if you have pre-registered.

PROJECTION FACILITIES

Overhead projectors will be provided in each meeting room.

SPECIAL EVENTS

Opening reception

On Tuesday evening, July 4, from 7–9 PM, join your PIERS hosts and other participants for an informal opening reception at the Ballroom of the Royal Sonesta Hotel.

Banquet

On Monday evening, July 10, from 6–10 PM, a banquet dinner will be held for PIERS participants and their guests in the Boston Museum of Science overlooking the Charles River. This event also includes access to the exhibition halls in the Museum of Science before dinner (5:30 PM to 6:00 PM) and a show in the famous Mugar Omni Theater. Tickets for banquet are US\$50 per person. The tickets are non-refundable and will be sold on a first-come, first-serve basis.

- Clambake dinner: 6:00 PM to 8:00 PM
- Omni Theater Show: 8:00 PM to 9:00 PM
- Dessert and coffee: 9:00 PM to 10:00 PM
- Bar Service: 6:30 PM to 10:00 PM

PIERS ONLINE

Information on PIERS 2000 and future PIERS is posted on the World Wide Web at www.piers.org.

ACCOMMODATION

Participants are responsible for making their own housing arrangements. The information below are provided for your convenience.

Royal Sonesta Hotel Accommodations

Royal Sonesta Hotel
5 Cambridge Parkway
Cambridge, MA 02142

Phone: 617-806-4200
Fax: 617-806-4232

The Royal Sonesta Hotel, located on the Charles River, overlooks Boston's historic Beacon Hill and is minutes from Cambridge high tech centers, MIT, and Harvard. Its amenities include a health club featuring a sparkling indoor/outdoor pool with retractable roof, an elegant restaurant and a lounge, and indoor parking for guests. Parking at the Royal Sonesta is US\$18 per day for overnight guests. PIERS participants not residing at the hotel may park in the hotel garage at an hourly rate.

MIT Dormitory Housing

MIT Conference Services
Room 7-111
77 Massachusetts Avenue
Cambridge, MA 02139

Phone: 617-806-4200
Fax: 617-806-4232
Email: conf-serv-www@mit.edu

A number of single and double accommodations are available on the MIT campus for the evenings of July 4–14. On-campus housing will be assigned on a first-come, first-serve basis. Any requests to stay before or after the meeting dates will be reviewed on a case by case basis, but cannot be guaranteed. Please contact the MIT Conference Services Office directly for reservation and availability.

Dormitory rooms are located in residence halls along the Charles River. Please note that rooms are not air conditioned, but fans are available at the front desk on a first-come, first-serve basis. Guests are provided with a twin-size bed, blanket, pillow, towel, desk, and closet. Irons can be requested at the front desk. There is one women's and one men's bathroom designated on each floor; rooms with private baths are not available. Each room is equipped with a telephone that allows outgoing campus, local, and long-distance (collect or credit card) calls, and all incoming calls. Messages will be taken by the front desk staff and posted in the lobby. A cot may be reserved for children between the ages of 6 and 14. Children under six years of age may not be accommodated on the MIT campus. Rooms are serviced daily (towels changed, waste receptacles emptied), and linens are changed weekly. There are common lounge areas in each residence hall for informal gathering; refrigerators are located in some of these areas. Each building has vending machines and coin-operated laundry machines on the lower level. All buildings are elevator-equipped.

Check-in time for all residence halls begins at 3:00 PM. Departing guests must check out at the front desk by 11:00 AM. Front desk staff can arrange to hold luggage for a short time after checkout on the date of departure.

There is a limited number of on-campus parking spaces available only for persons registered for MIT on-campus housing. The fee for on-campus parking is \$7.00 per day, and it must be paid upon reservation. Once paid for, on-campus parking fees are not refundable. The parking permit indicating the assigned campus lot will be provided upon check-in at the dormitory.

On-Campus Housing Fees (in US dollars)

Single (per night)	\$ 50.00
Shared double (per person, per night)	\$ 35.00
Full double (per night)	\$ 70.00
Cots (per night)	\$ 10.00
On campus parking* (per day)	\$ 7.00

(*Available on a first-come, first-serve basis only to people accommodated on the MIT campus. Once paid, parking fees are nonrefundable—no exceptions.)

Alternate Hotel Listing

For your reference, the following is a list of other hotels in the Cambridge/Boston area. *Please note that the rates below are only estimates*, do not include tax (currently 12.45%), and will vary depending on the actual room reserved. Reservations should be made directly with the respective hotel.

Boston Park Plaza Hotel
64 Arlington Street
Boston, MA 02116
800-225-2008
617-426-2000
US\$199/night (single)
US\$219/night (double)

Hilton Boston Back Bay
40 Dalton Street
Boston, MA 02115
800-874-0663
617-236-1100
US\$289/night (single)

University Park Hotel at MIT
20 Sidney Street
Cambridge, MA 02139
800-222-8733
617-577-0200
US\$169/night (single/double)

Cambridge Marriott
2 Cambridge Center
Cambridge, MA 02142
800-228-9290
617-494-6600
US\$279/night (single/double)
US\$309/night (double)

Hyatt Regency Cambridge
575 Memorial Drive
Cambridge, MA 02139
800-233-1234
617-492-1234
US\$300/night (single)
US\$325/night (double)

Westin Copley Place
10 Huntington Avenue
Boston, MA 02116
800-937-8461
617-262-9600
US\$399/night (single/double)

Charles Hotel in Harvard Square
1 Bennett Street
Cambridge, MA 02138
800-882-1818
617-864-1200
US\$286/night (single/double)

Sheraton Boston Hotel
39 Dalton Street
Boston, MA 02199
800-325-3535
617-236-2000
US\$239/night (single/double)

TRANSPORTATION

The Royal Sonesta Hotel is located in Cambridge and just minutes away from downtown Boston. Walking is the most pleasant way to get around this city of restaurants, shops, and museums. Boston's subway system, also known as the T, offers an inexpensive and convenient alternative. Air transportation into the greater Boston area is through the Logan International Airport (BOS) which is approximately 3 miles (5 km) from the Royal Sonesta Hotel. Taxi fare from the Airport to the hotel is approximately US\$15.

To drive from Logan International Airport to the Royal Sonesta Hotel, follow the arrows on the enclosed map. From the airport, follow signs to Sumner Tunnel to Interstate 93 North. Stay in right lane on 93 North and follow the sign for Cambridge (Exit 26). Exit 26 is the second exit after getting on 93 North. After the exit, follow the sign for Cambridge/Storrow Drive. After passing through a short tunnel, take the immediate exit at the left and bear right for Cambridge/Kendall Square. Cross the Longfellow bridge and turn right at the first set of lights. Take another right at the first set of lights and turn left at the end of Binney Street (2nd set of lights) onto Land Blvd. The Royal Sonesta Hotel will be on your right.

Public transportation from the airport to the Royal Sonesta is inexpensive, although cumbersome, and takes approximately 40 minutes. At the airport, take the shuttle bus (free) from your terminal to the Airport subway station. Enter the subway, at a cost of US\$0.85, take the Blue Line train in-bound to Government Center, proceed to the upper level for the Green Line; take an out-bound Green Line train to the Lechmere station. Exit from the station, turn left and walk along O'Brien Highway, then turn right to Land Blvd; the Royal Sonesta is on the left.

GENERAL INFORMATION

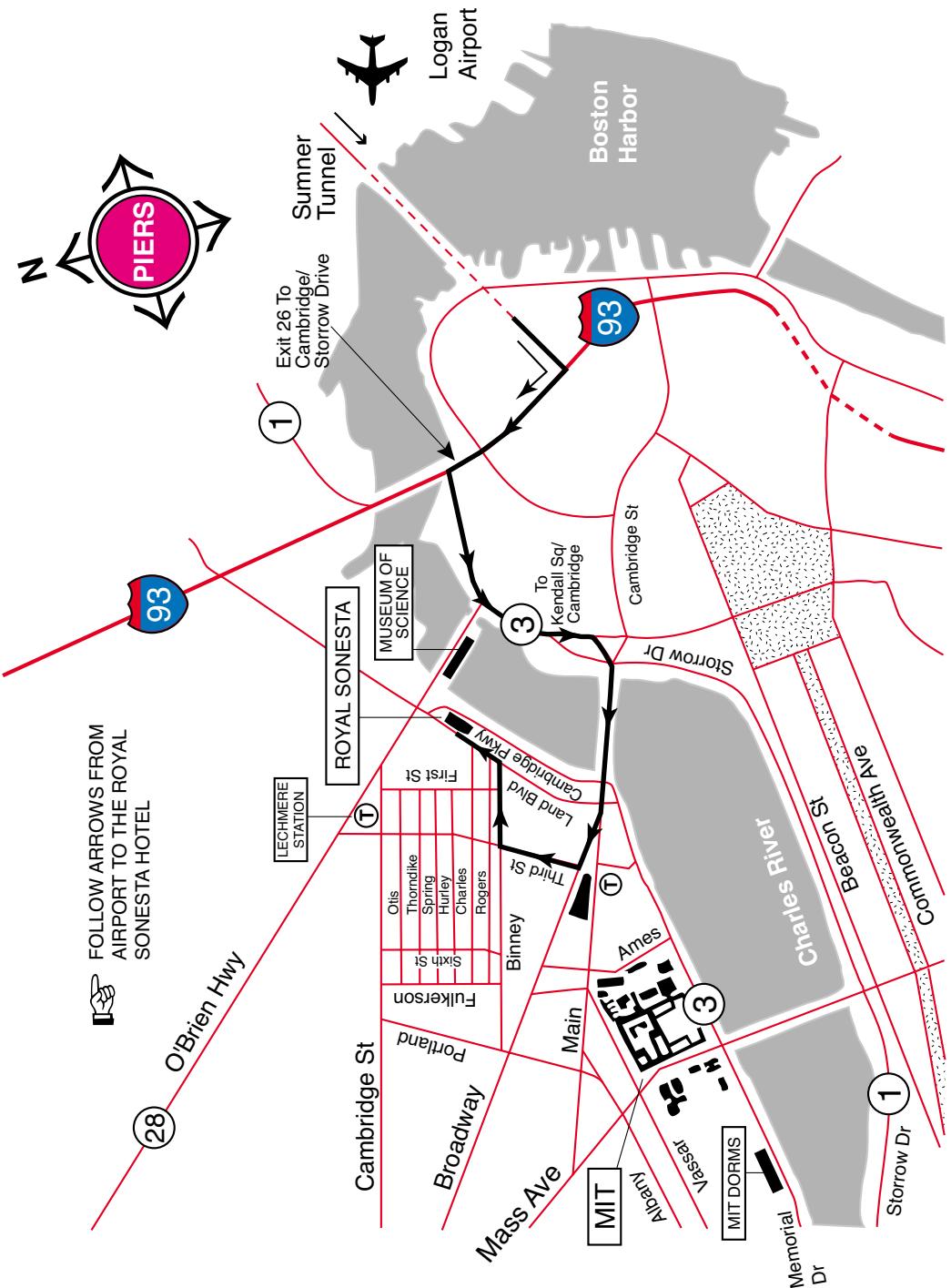
Sightseeing

Boston and Cambridge offer a wide variety of daytime and evening activities, boasting a combination of tradition and trend. Historic Faneuil Hall and Quincy Hall Marketplace, with their many fascinating shops, craftstands and restaurants, are popular gathering places for area residents and visitors from all over the world. The Copley Place shopping mall adds a different dimension to Boston's Copley Square, Back Bay and Prudential Center areas. Attractions of particular interest include the USS Constitution, the John F. Kennedy Presidential Library, and the Museum of Fine Arts. The historic Freedom Trail takes visitors from the Boston Common through the popular market areas of the North End and the waterfront district. Harvard Square, the Cambridge Common, and the university museums are but a few of the points of interest on the opposite side of the Charles River. One to two hours north and south of Boston stretches a magnificent and varied coast: from the rocky shores of Maine, by the stately mansions and sandy beaches of New Hampshire, along to fishing villages and art colonies of Cape Ann, further on to Provincetown. The New Hampshire White Mountains are only 2 to 3 hours away.

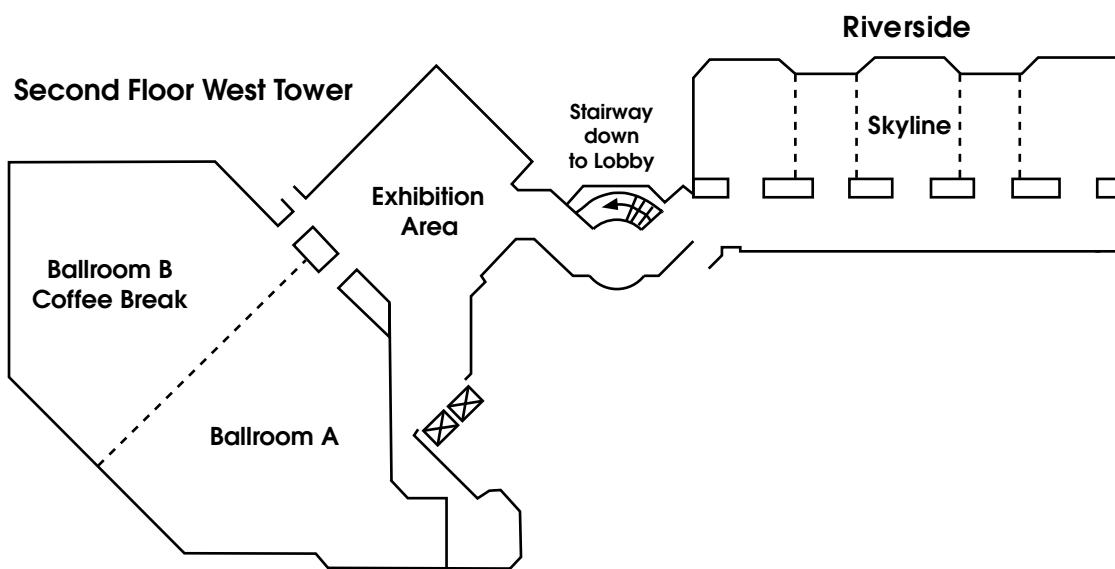
Climate and Dress

Boston weather in July is generally warm and pleasant, although often humid. The daytime average temperature is approximately 80 degrees Fahrenheit (27 degrees Celsius). The evenings are mild. Bring along a light jacket for evenings near the waterfront and an umbrella in case of rain.

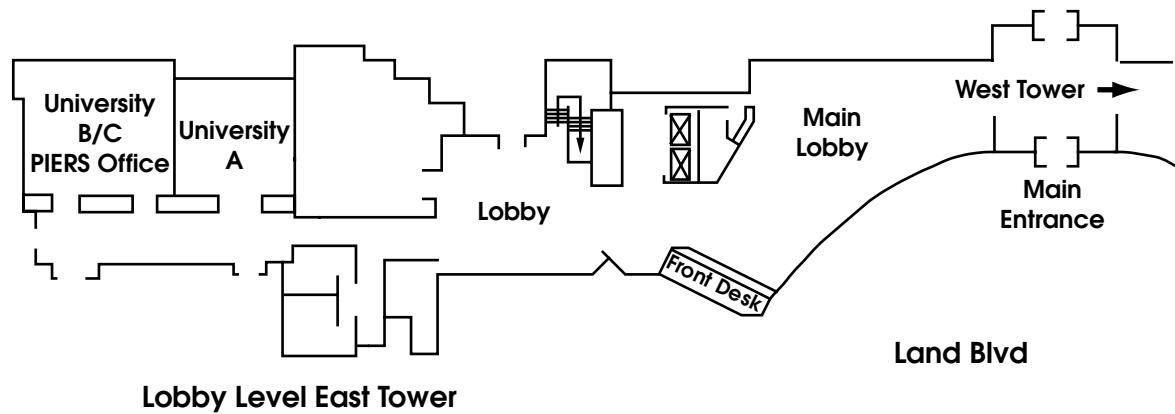
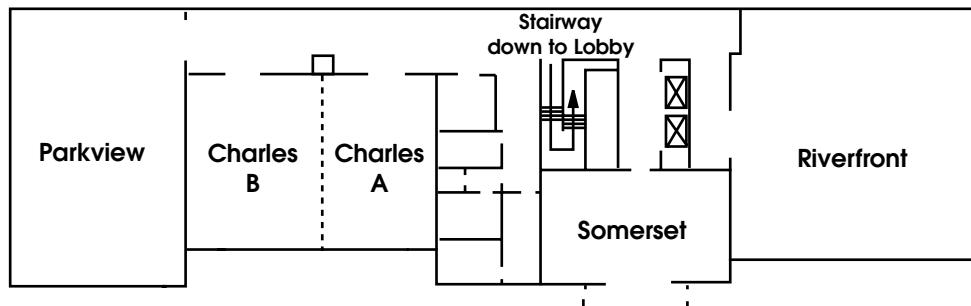
CAMBRIDGE/BOSTON AREA MAP



MAP OF SYMPOSIUM VENUE



Second Floor East Tower



PIERS 2000 TECHNICAL PROGRAM

Session 1A1 Rough Surface Scattering and Emission

Wednesday AM, 5 July 2000

Parkview

Organized by J. T. Johnson

Chaired by J. T. Johnson and K. S. Chen

- 8:00 Ordered Multiple Interaction for Closed Bodies
C. Rino, K. Doniger, R. Martinez (Sunnyvale, CA)
- 8:20 Mechanisms of Scattering from Spilling-Breaker Water Waves
S.-J. Ja, J. C. West (Stillwater, OK)
- 8:40 Radar Images of Rough Surface Scattering: A Comparison of Numerical and Analytical Models
H. Kim, J. T. Johnson (Columbus, OH)
- 9:00 Time-Domain Sensing of Targets Buried under a General Rough Air-Ground Interface
T. Dogaru, L. Carin (Durham, NC)
- 9:20 Coupled Canonical Grid/Discrete Dipole Approach for Computing Scattering from a Subsurface Target
R. J. Burkholder, J. T. Johnson (Columbus, OH)
- 9:40 Computational Methods for Rough Surface Scattering
J. A. DeSanto (Golden, CO)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Rigorous Solution of Scattering by Two-Dimensional Randomly Rough Surfaces
G. Soriano, M. Saillard (Marseille, France)
- 10:40 Numerical Simulations and Backscattering Enhancement of Electromagnetic Waves from Two-Dimensional Random Rough Surfaces Using the Forward-Backward Method with a Novel Spectral Acceleration Algorithm
D. Torrungrueng, J. T. Johnson (Columbus, OH)
- 11:00 Scattering and Emission from Dielectric Rough Surface with Inhomogeneous Layered Medium by Numerical Simulations Based on Physics-Based Two-Grid Method
K. S. Chen (Chung-Li, Taiwan); L. Tsang, Q. Li, J. Huang (Seattle, WA)
- 11:20 Thermal Emission from a Layered Medium Bounded by a Slightly Rough Interface
J. T. Johnson (Columbus, OH)
- 11:40 Theoretical Study of a Model Scatter-Probe Near-Field Optical Microscope
A. A. Maradudin (Irvine, CA); E. R. Méndez (Ensenada, Mexico); T. A. Leskova (Troitsk, Russia)

Session 1A2 Biomedical Applications of Electromagnetic Imaging and Reconstruction Techniques

Wednesday AM, 5 July 2000

Charles B

Organized by S. Caorsi, J. C. Bolomey, and A. Massa
Chaired by S. Caorsi and J. C. Bolomey

- 8:40 Utilizing Phase Unwrapping in Microwave Imaging
P. M. Meaney, K. D. Paulsen, B. W. Pogue, M. I. Miga, H. Abdul-Hadi (Hanover, NH)
- 9:00 Approximate Mathematical Models for CP-MCT and Comparison with FD-TD Computations
M. Bertero, F. Conte, M. Piana (Genova, Italy); M. Miyakawa (Niigata, Japan)
- 9:20 Reconstruction of the E.M. Field Distribution Inside Exposed Biological Bodies by Using Microwave Imaging Techniques
S. Caorsi (Pavia, Italy); A. Massa (Genoa, Italy)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Electrical Impedance Imaging
D. Isaacson, J. Mueller, J. Newell, G. Saulnier (Troy, NY)
- 10:40 Some Uniqueness Results for Inverse Scattering Theory in Microwave Medical Imaging Applications
M. Piana (Genoa, Italy)
- 11:00 Three Dimensional Structure Determination of Biological Objects Using an Improved Rytov Based Algorithm and Optimization Methods
C. Kechribaris, K. S. Nikita, N. K. Uzunoglu (Athens, Greece)
- 11:20 A Focused Microwave Imaging Method Based on a Genetic Algorithm for Medical Applications
S. Caorsi (Pavia, Italy); A. Massa, M. Pastorino (Genova, Italy)

Session 1A3 Materials and Applications

Wednesday AM, 5 July 2000

Charles A

Chaired by Y. Kotsuka and R. C. McPhedran

- 8:20 Correlation between Optical Properties and AFM Resiscope Observations on Cermet
M. Gadenne (Paris, France); O. Schneegans, F. Houzé, P. Chretien (Gif-sur-Yvette, France); P. Gadenne (Versailles, France)
- 8:40 A Method of Improving Matching Characteristic of Rubber Ferrite Absorber by Multi-holes
Y. Kotsuka, Y. Komazawa (Kanagawa, Japan)

- 9:00 Permittivity Measurement of Construction Materials for Living Space Design in Full Consideration of EMC
M. Miyakawa, M. Kubota, S. Kaneko, N. Ishii (Niigata, Japan); Y. Kanai (Kashiwazaki, Japan)
- 9:20 The Predictability of Filler Fraction and Frequency Dependence in the Dielectric Properties of Metal-Coated Microsphere-Based Composites
L. J. Youngs (Hampshire, United Kingdom)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Millimeter Wave Absorber Using Epoxy-Modified Urethane Rubber Mixed with Carbon Particles for 76 GHz and 94 GHz Band
T. Soh (Hiratsuka, Japan); O. Hashimoto (Tokyo, Japan)
- 10:40 On the Estimation of Orientational Order Parameter and Thermodynamic Quantities in the Case of BOAB and HxOAB Nematic Liquid Crystal Molecules from their Specific Volume and Ultrasonic Studies
P. R. Hiremath, D. K. Deshpande, R. L. Patil (Karnataka, India)
- 11:00 Electric (ION) Conduction Behavior in POAB and HpOAB Molecules in Their Liquid Crystalline Phase
H. D. Patil (Bagalkot, India); D. K. Deshpande, R. L. Patil (Dharwad, India)
- 11:20 Microwave Dielectric Behaviour of Cd-Co and Cr³⁺ Substituted Cd-Co Ferrites
P. N. Vasambekar, U. P. Laulgaonkar, A. S. Vaingankar (Kolhapur, India)
- 11:40 Comparison of Different Types of Complex Media Used as a Thin Wideband Radar Absorber
K. N. Rozanov, (Moscow, Russia)
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- Session 1A4**
Radar Sensing of Concealed Objects
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- Wednesday AM, 5 July 2000**
Somerset
Organized by S. Ayasli
Chaired by S. Ayasli, L. Novak, and J. K. Jao
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- 8:00 An Application of HDVI (Superresolution) to 3-D ISAR Imagery of Concealed Objects
J. Benitz (Lexington, MA)
- 8:20 Rigorous Modeling of Ultra-Wideband VHF Scattering from Tree Trunks Over Flat and Sloped Terrain
J. He, L. Carin (Durham, NC)
- 8:40 Signal Degradation Mechanisms for Passive Localization of Acoustic Sources in Shallow Water
L. M. Zurk, B. H. Tracey, J. A. Munro (Lexington, MA)
- 9:00 The Phenomenology of Target Size for Foliage Penetrating Radar (FOPEN)
P. V. Henstock (Lexington, MA); J. Wang (Cambridge, MA)
- 9:20 A Comparison of Broad Band Antennas for the Possible Use in Ground Penetrating Radar
C. Fischer, E. Gschwendtner, J. v.Hagen, W. Wiesbeck (Karlsruhe, Germany)
- 10:00 Coffee Break (Ballroom B)
- 10:20 A Statistical Approach to Object Detection from Ground Penetrating Radar Arrays
E. L. Miller, X. Xu (Boston, MA)
- 10:40 Mine Detection Using a Handheld Parabolic Antenna: Analysis of Experimental Data
B. Yang, C. Rappaport (Boston, MA)
- 11:00 Modeling Clutter from Random Rough Ground for GPR Subsurface Sensing Applications
M. El-Shenawee, C. Rappaport (Boston, MA)
- 11:20 Effects of Various Enhancement Techniques on FOPEN Data
L. Kang, L. Novak (Lexington, MA)
- 11:40 Ground Penetrating Radar (GPR) Techniques for Archaeological and Environmental Applications
M. Pipan, L. Baradello, E. Forte, I. Finetti (Trieste, Italy)
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Session 1A5
Optical Communication Systems and Devices

Wednesday AM, 5 July 2000

Riverfront

Chaired by H. Rowe and H.-C. Huang

- 8:00 Nonlinear Multilayer Heterostructures for Microwave Photonic Applications
I. Jäger, I. Schwab, D. Jäger (Duisburg, Germany)
- 8:20 Dispersion-Managed Wavelength Division Multiplexed Soliton Systems with Filtering
F. M. Janeiro, A. L. Topa, C. R. Paiva (Lisboa, Portugal)
- 8:40 Wavelength Division Multiplexing with Solitons in Erbium-Doped Fiber Couplers
J. R. Costa, P. M. Ramos, C. R. Paiva, A. M. Barbosa (Lisboa, Portugal)
- 9:00 A Broadband Model for Single-Mode Fibers Including Nonlinear Effects
K. Grobe (Hannover, Germany); H. Braunisch (Cambridge, MA)
- 9:20 Time Domain Beam Propagation Method with Quantum-Electronic Nonlinearity
J. M. Arnold (Glasgow, UK); H. M. Masoudi, M. A. Al-Sunaidi (Dhahran, Saudi Arabia)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Analysis of Soliton-like Pulse Switching in Mismatched Two-Core Fiber Couplers
P. M. Ramos, C. R. Paiva (Lisboa, Portugal)
- 10:40 Single Elliptical Eigenmode Scheme in Magnetized Elliptically Birefringent Optical Fiber
H.-C. Huang (Shanghai, China)
- 11:00 New Class of Partially Coherent Light Beams Carrying Optical Vortices
S. A. Ponomarenko (New York, NY)
- 11:20 A New Threshold Voltage Model for Short Channel GaAs OPFET for Optical Communication Systems
S. Bose, R. S. Gupta (New Delhi, India)

Session 1A6
Advances in FDTD**Wednesday AM, 5 July 2000****Skyline**

Organized by S. C. Hagness

Chaired by S. C. Hagness and M. Okoniewski

- 8:40 Recent Advances in the PSTD Algorithm for Large-Scale Problems
Q. H. Liu, G.-X. Fan (Durham, NC)
- 9:00 Complex Frequency Analysis of the FDTD Method: An Alternative Approach to Understanding Numerical Stability
S. C. Hagness (Madison, WI); A. Taflove (Evanston, IL)
- 9:20 Development of an Unconditionally Stable FDTD
Z. Chen, F. Zheng (Halifax, Canada)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Hybrid FDTD-Frequency Dependent Network Simulations Using Digital Filtering Techniques
I. Rumsey, M. Piket-May (Boulder, CO)
- 10:40 Modeling of Photonic Bandgap (PBG) Devices Using MRTD Adaptive Schemes
N. Bushyager, B. McGarvey, M. M. Tentzeris (Atlanta, GA)
- 11:00 New Source Models in Total/Scattered FDTD
M. Okoniewski (Calgary, Canada); M. E. Potter, M. A. Stuchly (Victoria, Canada)

Session 1P1
Coherent Effects in Random Media I**Wednesday PM, 5 July 2000****Parkview**Organized by V. Freilikher and H. Ogura
Chaired by V. Freilikher and H. Ogura

- 13:00 Statistical Approach to Photon Localization
A. Z. Genack, A. A. Chabanov (Flushing, NY)
- 13:20 Resonances and Localization of Classical Waves in Random Systems with Correlated Disorder
G. Samelsohn, R. Mazar (Beer-Sheva, Israel)
- 13:40 Localization and Diffusion of Light in a Multi-Waveguide System with Random Imperfections
A. Komiyama (Neyagawa, Japan)
- 14:00 Localization and Enhancement of Electromagnetic Waves in Waveguides with Random Walls
K. Tanaka and M. Tanaka (Yanagido, Japan)
- 14:20 Interaction Enhanced Localization in 2DEG
R. Berkovits (Princeton, NJ)
- 14:40 Statistics of Wave Amplitudes in Chaotic Billiards
K. B. Efetov (Bochum, Germany)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Quantum Hall Plateau Transitions in Disordered Superconductors
Y. Avishai (Beer-Sheva, Israel)
- 15:40 On the Wave Propagation and Localization in 2-Dimensional Homogeneous and Isotropic Random Medium
H. Ogura (Wakayama, Japan)

- 16:00 An Analytical Expression of the Incoherent Wavefield on a Slightly Random Neumann Surface: Wave Localization
Y. Tamura, J. Nakayama (Kyoto, Japan)

- 16:20 Temporal Fluctuations of Waves in Nonlinear Disordered Media
S. E. Skipetrov, R. Maynard (Grenoble, France)

- 16:40 Propagation of a Soliton Beam in a Waveguide with Random Boundaries
F. Kh. Abdullaev (Tashkent, Uzbekistan)

- 17:00 Modulational Instability of Electromagnetic Waves in Birefringent Media with Periodic and Random Parameters
F. Kh. Abdullaev (Tashkent, Uzbekistan); J. Garnier (Palaiseau, France)

- 17:20 Exciton-Surface Scattering in Quasi-Two Dimensional Quantum Well
N. Atenco-Analco, N. M. Makarov, F. Pérez-Rodríguez (Puebla, Mexico)

- 17:40 Lightscattering from a Random Amplifying Film Deposited on a Planar Perfectly Conducting Substrate
I. Simonsen (Trondheim, Norway); T. Leskova (Troitsk, Russia); A. A. Maradudin (Irvine, CA)

Session 1P2
Direct and Inverse Scattering in Extended Inhomogeneous Environments**Wednesday PM, 5 July 2000****Charles B**Organized by L. Fishman
Chaired by L. Fishman and P. M. Jordan

- 13:00 An Indicator Method for Inverse Scattering Problems in Underwater Acoustics
Y. Xu (Chattanooga, TN)
- 13:20 A Multiresolution Based Homogenization with Application to Propagation in Complex Environments
B. Z. Steinberg, V. Lomakin, E. Heyman (Tel-Aviv, Israel)
- 13:40 Exact Constructions of Helmholtz Operator Symbols for Three-Layer Composite Media
P. M. Jordan, L. Fishman (Stennis Space Center, MS)
- 14:00 Uniqueness of Reconstructing the Permittivity and Shape for Infinite Screens with Irregularities
Yu. V. Shestopalov, V. V. Lozhechko (Moscow, Russia)
- 14:20 The Unidentified Object Problem in a Shallow Ocean with a Fluid-like Sediment Layer Overlying a Rigid Seabed
J. L. Buchanan (Annapolis, MD); R. P. Gilbert (Newark, DE); A. Wirgin (Marseille, France); Y. S. Xu (Chattanooga, TN)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Shape Retrieval of an Object in a Shallow Ocean with a Fluid-like Seabed
R. P. Gilbert, Y. Ou (Newark, DE); Z.-S. Lin (Dover, NE)
- 15:40 The Role of Operator Symbols in Scalar Inverse Scattering and Stochastic Wave Propagation Modeling
L. Fishman (Stennis Space Center, MS)
- 16:00 On Single Scatter Approximation
Y. Y. Lu (Hong Kong)

- 16:20 EM Analysis in Complex Laminates: An MRA Homogenization Approach
V. Lomakin, B. Z. Steinberg, E. Heyman (Tel-Aviv, Israel)
- 16:40 EM Analysis in Complex Laminates: The Equivalence of the Complete and the Effective Dyadic Green's Function
V. Lomakin, B. Z. Steinberg, E. Heyman (Tel-Aviv, Israel)

Session 1P3
Guided Waves and Transmission Lines

Wednesday PM, 5 July 2000

Charles A

Chaired by D. Nyquist and J. M. Arnold

- 13:00 Time Domain Solution of Telegrapher's Equations with Constant R, L, G, and C
K. Litovsky (Boston, MA); M. Tsuk (Marlborough, MA); R. Kotiuga (Boston, MA)
- 13:20 Analytical Asymptotic Extraction Techniques for Right Angles Bend Discontinuities
C.-B. Chae, S.-O. Park (Taejon, Korea); K. W. Sub, H. W. Jung (Seoul, Korea)
- 13:40 A Full-Wave Analysis of Periodically Nonuniform CPW
X. K. Kang, T. Q. Deng, P. S. Kooi, M. S. Leong, L. W. Li, B. L. Ooi (Singapore)
- 14:00 Using Wavelets in the Method of Lines
O. Pertz, A. Beyer (Duisburg, Germany)
- 14:20 A Fast Approach for Computing the Propagation Constant of Open Microstriplines in Multi-Layered Dielectric Medium Using Spectral Domain Analysis
T. H. Ng, B. L. Ooi, P. S. Kooi (Singapore)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Leakage Effect in Pseudochiral Waveguides
A. L. Topa, C. R. Paiva, A. M. Barbosa (Lisboa, Portugal)
- 15:40 Transmission Line Model for Optical Rectification in a Travelling Wave Structure
K. Bubke, D. C. Hutchings, J. M. Arnold (Glasgow, United Kingdom); U. Peschel (Jena, Germany)
- 16:00 Synthesis of Converters in Waveguides and Gratings Based on Spectral Theory
Y. K. Sirenko, N. P. Yashina (Kharkov, Ukraine); K. F. Schuenemann (Hamburg, Germany)
- 16:20 Semi-Inversion Algorithms in Time and Frequency Domain for One Class of Waveguide Resonator Problems
Y. K. Sirenko, V. I. Tkachenko, N. P. Yashina (Kharkov, Ukraine)
- 16:40 Quasi Modes and the Matrix Method for the Analysis of Optical Waveguides
A. Ghatak (New Delhi, India)
- 17:00 Photonic and Relativistic Principles in Guided Electromagnetic Waves
T. K. Ishii (Milwaukee, WI)

Session 1P4a
Requirements of Acquisition and Processing for Experimental Data Inversion

Wednesday PM, 5 July 2000

Somerset

Organized by J. M. Geffrin and J. Mallorqui
Chaired by J. M. Geffrin and J. Mallorqui

- 13:00 On Requirements for Electromagnetic Detection of Immersed Metallic Structures
J.-M. Geffrin, B. Duchêne, M. Lambert (Gif-sur-Yvette, France)
- 13:20 Embedding Approach for Imaging Dielectric Objects Inside a Metal Container
A. G. Tijhuis (Eindhoven, The Netherlands); W. H. A. B. Janssen, A. P. M. Zwamborn (Gravenhage, The Netherlands)
- 13:40 Microwave Tomographic Imaging of Dielectric Objects in Free Space
Z. Wu, A. Boughriet, A. T. Nugroho, H. McCann, L. E. Davis (Manchester, United Kingdom)
- 14:00 Requirements for the Scattered Field Acquisition and the Data Inversion in an Imaging Technique Based on a Neural Network
E. Bermani, S. Caorsi (Pavia, Italy); A. Massa, M. Raffetto (Genoa, Italy)
- 14:20 Reconstruction of the Microwave Properties of a 2D Dielectric Object Based on the Measured X-Band Electric Energy Density
B. Pluquet, B. Duchêne (Gif-sur-Yvette, France); P. Levesque (Châtillon, France); X. Ferrieres (Meudon, France)
- 14:40 Integrating Experimental Procedures with Algorithms and Data Requirements for Practical Imaging by Full Wave, Non-Linear Inverse Scattering
D. T. Borup, J. W. Wiskin, S. A. Johnson (Salt Lake City, UT)

Session 1P4b
Inverse Scattering from Real Data

Wednesday PM, 5 July 2000

Somerset

Organized by M. Saillard and K. Belkebir
Chaired by M. Saillard and K. Belkebir

- 15:20 Experimental Data Base for Validating Two-Dimensional Inverse Scattering Algorithms
K. Belkebir, S. Bonnard, F. Pezin, P. Sabouroux, M. Saillard (Marseille, France)
- 15:40 Inverse Scattering from Laboratory-Controlled Data Using Diffraction Tomography and Binary Modified Gradient Method
B. Duchêne (Gif-sur-Yvette, France)
- 16:00 Electromagnetic Imaging of Real Dielectric Targets: A Nonmeasurable-Current Approach
S. Caorsi (Pavia, Italy); G. L. Gragnani (Genoa, Italy)
- 16:20 Boundary Shape Reconstruction of Obstacles from Laboratory-Controlled Data at Microwave Frequencies
C. Ramananjaona, M. Lambert, D. Lesselier (Gif-sur-Yvette, France)

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| <p>16:40 Reconstruction of Obstacles from Multifrequency Data
<i>P. Maponi (Camerino, Italy); F. Zirilli (Rome, Italy)</i></p> <p>17:00 Inversion of Synthetic and Experimental Scattering Data for the Comparison of Two Reconstruction Methods Employing the Born Approximation
<i>R. Guillermin, P. Lasaygues, J. P. Sessarego, A. Wirgin (Marseille, France)</i></p> | <p>16:40 Method of Transfer Relations in the Wave Multiple Scattering Theory with Applications to Near-Field Optics and a Photonic Crystal Structure
<i>Yu. N. Barabanenkov, M. Yu. Barabanenkov, V. L. Kouznetsov (Moscow, Russia)</i></p> <p>17:00 Surface Polaritons in Finite Superlattices with Dissipation
<i>N. N. Beletskii, Y. V. Bludov (Kharkov, Ukraine)</i></p> |
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Session 1P5
Photonic Band-Gap Structures

Wednesday PM, 5 July 2000

Riverfront

Chaired by A. C. Priou and L. C. Botten

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| <p>13:00 Strong Dispersion Phenomena in Artificial Opal Structures
<i>D. N. Chigrin, S. V. Romanov, T. Maka, C. M. Sotomayor Torres (Wuppertal, Germany)</i></p> <p>13:20 Experimental and Numerical Measurements of the Three Generic Types of Perturbed Photonic Crystals: Effect on the Bandgaps and on the Localized States
<i>G. Guida, T. Brillat (Ville d'Avray, France); F. Gadot, A. de Lustrac (Orsay, France); A. Priou (Ville d'Avray, France)</i></p> <p>13:40 Comparison Between Electrically Controllable Photonic Band Gap Including Variable Capacitance or Resistance
<i>T. Brillat (Ville d'Avray, France); A. de Lustrac, F. Gadot, E. Akman soy, J. M. Lourtioz (Orsay, France)</i></p> <p>14:00 Band-Gap Optimisation and Scattering of Light in Photonic Crystals
<i>M. Doosje, B. J. Hoenders, J. Knoester (Groningen, The Netherlands)</i></p> <p>14:20 Photonic Bandgap Studies for Finite Structures
<i>K. Kelly, T. Kutrumbos, A. Byers, I. Rumsey, T. Lammers, J. Wang (Boulder, CO); S. Hagness (Madison, WI); M. Piket-May (Boulder, CO)</i></p> <p>14:40 Metallo-Dielectric Photonic Crystal Design for Infrared Applications
<i>J. A. Oswald, B.-I. Wu (Cambridge, MA); K. A. McIntosh, S. Verghese (Lexington, MA)</i></p> <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 Analysis of Photonic Crystal Filters by the Finite-Difference Time-Domain Technique
<i>B.-I. Wu, Y. E. Yang, J. A. Kong (Cambridge, MA); S. Verghese, K. A. McIntosh (Lexington MA); J. A. Oswald (Cambridge, MA)</i></p> <p>15:40 Homogenization of 2D Periodic Composites and Photonic Crystal Optics
<i>P. Halevi, A. A. Krokhin, J. Arriaga (Puebla, Mexico)</i></p> <p>16:00 Generalised Methods for Photonic Band Calculations
<i>L. C. Botten, R. C. McPhedran, N. A. Nicorovici, A. A. Asatryan, P. A. Robinson, C. M. de Sterke (Sydney, Australia)</i></p> <p>16:20 Magneto-Plasma Waves in Periodic Semiconducting Superlattice
<i>A. A. Bulgakov, O. V. Shramkova (Kharkov, Ukraine)</i></p> |
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Session 1P6
Higher-Order CEM Techniques

Wednesday PM, 5 July 2000

Skyline

Organized by K. C. Hill
Chaired by K. C. Hill and S. Wandzura

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| <p>13:20 High-Order Time-Domain Wave Propagation Algorithms
<i>H. Contopanagos, S. Wandzura (Malibu, CA)</i></p> <p>13:40 Fast Integral Methods for Electromagnetic Scattering
<i>J. L. Volakis, K. Sertel, M. Carr, E. Topsakal (Ann Arbor, MI)</i></p> <p>14:00 A Higher-Order Parallelized Multilevel Fast Multipole Algorithm for 3D Scattering
<i>K. C. Donepudi, J. M. Jin, S. Velampparambil, J. M. Song, W. C. Chew (Urbana, IL)</i></p> <p>14:20 Accelerated Hybrid Algorithms Using Fast Fourier Transforms
<i>J. Karty, J. Putnam, R. Pearlman (St. Louis, MO); K. Hill (Wright-Patterson AFB, OH); D. Elking (St. Louis, MO)</i></p> <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 On the Integral Equation-Asymptotic Phase (IE-AP) Method for Three-Dimensional Scattering
<i>M. E. Kowalski, B. Singh (Urbana, IL); K. D. Trott (Valparaiso, FL); L. C. Kempel (East Lansing, MI); K. C. Hill (Wright-Patterson AFB, OH); J. M. Jin (Urbana, IL)</i></p> <p>15:40 A Fast, High-Order RCS Code for Targets Containing Penetrable, Absorbing Materials
<i>J. J. Ottusch, J. L. Vischer, S. M. Wandzura (Malibu, CA)</i></p> <p>16:00 Quadrature Rules for Singular Integrals in Computational Electromagnetics
<i>E. Yip, B. Dembart (Seattle, WA)</i></p> <p>16:20 Higher-order Integral-Equation Computational Techniques for Electromagnetic Radiation and Scattering
<i>B. Notaros (Dartmouth, MA)</i></p> |
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Session 2A1
Randomly Rough Surface Scattering, Phenomena and Applications

Thursday AM, 6 July 2000

Parkview

Organized by G. Berginc
Chaired by G. Berginc and Y. Beniguel

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| <p>8:40 Electromagnetic Wave Scattering from a 3-Dimensional Rough Dielectric Film: Study of the Coupling Between the Randomly Rough Interfaces
<i>G. Berginc, A. Soubret (Guyancourt, France); C. Bourrelly (Marseille, France)</i></p> |
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- 9:00 Calculation of the Mueller Matrix for Scattering of Electromagnetic Waves from Three-Dimensional Canonical Rough Surfaces
B. Chevalier, G. Berginc (Guyancourt, France)
- 9:20 Non-Local Small Slope Approximation Method for Scattering of Vector Waves from Randomly Rough Surfaces at Grazing Angles
G. Berginc (Guyancourt, France); Y. Beniguel (Courbevoie, France); B. Chevalier (Guyancourt, France)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Infrared Radiation of a Gaussian Wind-Roughened Sea Surface: Modeling of the Two-dimensional Emissivity and Reflectivity
C. Bourlier, J. Saillard (Nantes, France); G. Berginc (Guyancourt, France)
- 10:40 Multiple-Scattering Effects in the Second Harmonic Generation of Light in Reflection from a Randomly Rough Metal Surface
T. A. Leskova (Troitsk, Russia); A. A. Maradudin (Irvine, CA); E. R. Méndez, M. Leyva-Lucero (Ensenada, Mexico)
- 11:00 Coherent and Incoherent Scattering from Two-Dimensional Rough Surfaces: Influence of the Roughness and of the Incidence Angle
S. Mainguy (Le Barp, France)
- 11:20 Anisotropic Coherent Emission by a SiC Grating Supporting a Surface Phonon-Polariton: Experimental and Theoretical Study
J.-J. Greffet, R. Carminati (Chatenay-Malabry, France); S. Mainguy (Le Barp, France); Y. Chen (Bagnoux, France); P. Valle (Santander, Spain)

Session 2A2

Microwave Tomography: Progress Towards Biomedical Applications

Thursday AM, 6 July 2000

Charles B

Organized by S. Semenov

Chaired by S. Semenov and A. Bulyshev

- 8:20 Three-Dimensional Microwave Tomography Theory and Computer Experiments
A. Bulyshev, A. Souvorov, S. Semenov, R. Svenson, A. Nazarov, Y. Sizov, G. Tatsis (Charlotte, NC)
- 8:40 A Microwave Breast Imaging Prototype
P. M. Meaney, K. D. Paulsen, M. W. Fanning (Hanover, NH)
- 9:00 Imaging of Biological Targets by the Prototype Model and a High Resolution Model of CP-MCT
M. Miyakawa, K. Kitamura, M. Eiyama, N. Ishii (Niigata, Japan); M. Bertero, P. Boccacci (Genova, Italy)
- 9:20 Microwave Tomography for Significantly Mismatched and Lossy Bodies: Extending the Usefulness of Born Methods
E. Salerno (Pisa, Italy)
- 10:00 Coffee Break (Ballroom B)**

- 10:20 Technical Problems of Microwave Tomographic Systems for Whole Body Imaging
S. Y. Semenov, R. H. Svenson (Charlotte, NC); A. G. Nazarov (Moscow, Russia); Y. E. Sizov (Troitsk, Russia); A. E. Souvorov, A. E. Bulyshev (Charlotte, NC); A. V. Pavlovsky, P. N. Repin (Moscow, Russia); B. A. Voinov (Arzamas, Russia); V. G. Posukh (Novosibirsk, Russia); G. P. Tatsis (Charlotte, NC)
- 10:40 Progress in Microwave Tomography Towards Biomedical Applications in the Cardiovascular Field
S. Y. Semenov, R. H. Svenson, A. E. Souvorov, A. E. Bulyshev (Charlotte, NC); Y. E. Sizov (Troitsk, Russia); A. G. Nazarov (Moscow, Russia); V. G. Posukh (Novosibirsk, Russia); B. A. Voinov (Arzamas, Russia); A. V. Pavlovsky, P. N. Repin (Moscow, Russia)
- 11:00 Computer Analysis of a Microwave Breast Cancer Tomography
A. E. Souvorov, A. E. Bulyshev, S. Y. Semenov, R. H. Svenson, G. P. Tatsis (Charlotte, NC)
- 11:20 Application of the Method of Auxiliary Sources for Microwave and Acoustic Imaging of Biological Objects
R. Zaridze, Ph. Shubitidze, K. Tavzarashvili, G. Saparishvili (Tbilisi, Georgia); K. S. Nikita, S. Koulourides, T. A. Maniatis, N. K. Uzunoglu (Athens, Greece)

Session 2A3

Composite Materials Modeling

Thursday AM, 6 July 2000

Charles A

Organized by C. Brosseau

Chaired by C. Brosseau and D. S. McLachlan

- 8:40 Evaluating Dielectric Impedance Spectra Using Effective Media and Percolation Theories
D. S. McLachlan (Johannesburg, South Africa)
- 9:00 Electrical Conductivity in Polymer Based Composites
J. Glatz-Reichenbach (Baden-Dättwil, Switzerland)
- 9:20 Infrared Optical Properties of Superparamagnetic Cermet: Confrontation between Modeling and Experiments
M. Gadenne (Paris, France); C. Desmarest, P. Gadenne (Versailles, France)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Calculation of the Complex Effective Permittivity of Composite Materials: A Boundary Integral Equation Approach
A. Beroual (Ecilly, France); C. Brosseau (Brest, France)
- 10:40 The Complex Conductivity (Dielectric Constant) of Metal-Insulator Systems Near the Percolation Threshold
D. S. McLachlan, W. D. Heiss, C. Chiteme (Johannesburg, South Africa)
- 11:00 Modeling the Complex Dielectric Constant of Composite Materials with Layered Spheroidal Particles
N. Harfield (Ames, IA)

Session 2A4
Numerical Modeling of Optical Waveguide Structures

Thursday AM, 6 July 2000**Somerset**

Organized by G. R. Hadley

Chaired by G. R. Hadley and R. Pregla

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- 8:00 Modeling of Optical Devices Including Anisotropic Material by the Method of Lines and by a Novel FD-BPM
R. Pregla, S. Helfert (Hagen, Germany)
- 8:20 Modeling of Semiconductor Micro-Ring and Disk Resonators
S. C. Greedy, P. D. Sewell, S. V. Boriskina, T. M. Benson (Nottingham, United Kingdom)
- 8:40 Propagation and Scattering in Multilayered Structures: A Green's Tensor Approach
O. J. F. Martin, M. Paulus (Zurich, Switzerland)
- 9:00 Space-Time Domain Modeling and Simulation of Vertical-Cavity Surface Emitting Lasers
C.-Z. Ning, S. Cheung, P. Goorjian (Moffett Field, CA)
- 9:20 Electromagnetic Analysis and Synthesis of Wavelength-Scale Diffractive Optical Elements
D. W. Prather (Newark, DE)
- 9:40 High-Power Femtosecond Pulse Propagation in Air
M. Kolesik (Tucson, AZ); M. Mlejnek (Corning, NY); J. V. Moloney, E. M. Wright (Tucson, AZ)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Low-Truncation-Error Photonics Modeling
G. R. Hadley (Albuquerque, NM)
- 10:40 Waveguide and Resonator Modeling Based on Vectorial Eigenmode Expansion and Perfectly Matched Layer Boundary Conditions
P. Biesmans, R. Baets (Gent, Belgium)
- 11:00 Propagating Beam Analysis of TM Waves in z-Variant Step-Index Slab Waveguides
J. Yamauchi, T. Tsuda, H. Nakano (Tokyo, Japan)
- 11:20 Design of Compact Low-Loss Bends in Optical Waveguides
M. Rajarajan, B. M. A. Rahman (London, United Kingdom); S. A. A. Obayya, H. A. El-Mikathi (Mansoura, Egypt); K. T. V. Grattan (London, United Kingdom)
- 11:40 Assessing the Suitability of the Beam Propagation Method or the Finite-Difference Time-Domain Method for Optical Waveguiding Problems in Photonics
R. Scarmozzino, E. Heller (Ossining, NY)
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Session 2A5
Photonic Band Structures

Thursday AM, 6 July 2000**Riverfront**

Organized by D. R. Maystre and G. Tayeb

Chaired by D. R. Maystre and G. Tayeb

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- 8:20 Tunable Photonic Crystals with Semiconducting Constituents
P. Halevi (Puebla, Mexico); F. Ramos-Mendieta (Hermosillo, Mexico)
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- 8:40 Photonic Crystals: From Bloch Modes to T-Matrices
B. Gralak, S. Enoch, G. Tayeb (Marseille, France)
- 9:00 Novel Electromagnetic Waveguides Using Photonic Crystals
A. Bjarklev, J. Broeng, S. E. Barkou (Lyngby, Denmark)
- 9:20 Effects of Disorder on the Bandgap of Photonic Crystals
R. C. McPhedran, L. C. Botten, A. A. Asatryan, P. A. Robinson, N. A. Nicorovici, C. M. de Sterke (Sydney, Australia)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Investigating Plasmons at Microwave Frequencies
D. R. Smith, W. J. Padilla, D. C. Vier, S. C. Nemat-Nasser, S. Schultz (La Jolla, CA); O. J. F. Martin (Zurich, Switzerland)
- 10:40 Fabrication, Characterization and Modelling of Macroporous Silicon Based Photonic Crystals at Telecommunication Wavelengths
S. Rowson, A. Chelnokov, J.-M. Lourtioz (Orsay, France)
- 11:00 Antennas and High Impedance Ground Planes with No Surface Wave
G. Poilasne, E. Yablonovitch (Los Angeles, CA)
- 11:20 Numerical and Theoretical Analysis of Photonic Crystal Fibers
S. Guenneau, A. Nicolet, F. Zolla (Marseille, France)
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Session 2A6
Advances in FDTD Techniques

Thursday AM, 6 July 2000**Ballroom A**

Chaired by W. C. Chew and C. Rappaport

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- 8:40 How to Make Second Order FDTD Spectrally Convergent for Free
S. Asvadurov, V. Druskin (Ridgefield, CT); L. Knizhnerman (Moscow, Russia)
- 9:00 Modeling Di-Electric Interfaces in the FDTD-Method: A Comparative Study
A. Ditkowski, J. S. Hesthaven, C.-H. Teng (Providence, RI)
- 9:20 FDTD Methods for Maxwell's Equations in Complex Geometries
A. Ditkowski (Providence, RI); K. Dridi (Lyngby, Denmark); J. S. Hesthaven (Providence, RI)
- 10:00 Coffee Break (Ballroom B)
- 10:20 A Non-Dissipative Staggered Fourth-Order Accurate Explicit Finite Difference Scheme for the Time-Domain Maxwell's Equations
A. Yefet, P. G. Petropoulos (Newark, NJ)
- 10:40 An Efficient Mur-Type ABC for Lossy Scattering Media
J. Talbot, C. Rappaport (Boston, MA)
- 11:00 Conformal Perfectly Matched Layer in the Time-Domain: Dynamic Stability Analysis
F. L. Teixeira (Cambridge, MA); K. P. Hwang, W. C. Chew, J. M. Jin (Urbana, IL)
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Session 2A7
Data Fusion

Thursday AM, 6 July 2000
Skyline

Organized by M. Moghaddam
Chaired by M. Moghaddam

- 8:00 Combining InSAR Data from Two Orthogonal Tracks for the Retrieval of Three-Dimensional Tree Crown Maps
C. Varekamp, D. H. Hoekman (Wageningen, The Netherlands)
- 8:20 Airborne Active and Passive Microwave Measurements for Investigating Agricultural Areas
G. Macelloni, S. Paloscia, P. Pampaloni, R. Ruisi (Florence, Italy); M. Dechambre, R. Valentin (Velizy, France); A. Chanzy, J. P. Wigneron (Avignon, France)
- 8:40 Fusion and Classification of Multisource Remote Sensing Data Based on Tree Structured Filter Banks
J. R. Sveinsson, J. A. Benediktsson (Reykjavik, Iceland)
- 9:00 Statistical Characteristics of Optical and Radar Data Used for Estimating Continuous Vegetation Variables
J. L. Dungan (Moffett Field, CA); M. Moghaddam (Pasadena, CA); J. C. Coughlan (Moffett Field, CA)
- 9:20 Estimating Foliage Biomass and LAI from Microwave and Optical Remote Sensing Data
S. S. Saatchi (Pasadena, CA); J. M. Chen, J. Cihlar (Ottawa, Canada)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 Evaluation of Synthetic Aperture Radar for Fire Hazard Assessment in Southern California Chaparral Ecosystems
P. E. Dennison, D. A. Roberts (Santa Barbara, CA); J. C. Regelbrugge (San Bernardino, CA)
- 10:40 Vegetation Structure from the Quantitative Fusion of Radar Interferometric and Hyperspectral Optical Remote Sensing
R. N. Treuhaft (Pasadena, CA); G. P. Asner (Boulder, CO); B. E. Law (Corvallis, OR)
- 11:00 Estimating Forest Vegetation Variables by Combining INSAR and POLSAR Data and Minimizing the Need for Ancillary Data
M. Moghaddam, R. Treuhaft (Pasadena, CA)
- 11:20 Relating Vegetation Aerodynamic Roughness Length to Interferometric SAR Measurements
S. Saatchi, E. Rodriguez (Pasadena, CA)

Session 2P1
Coherent Effects in Random Media II

Thursday PM, 6 July 2000
Parkview

Organized by V. Freilikher and H. Ogura
Chaired by V. Freilikher and H. Ogura

- 13:00 Correlation in Polarization of EM Wave in Random Media
A. A. Chabanov, A. Z. Genack (Flushing, NY); N. Tregoures, B. A. van Tiggelen (Grenoble, France)
- 13:20 Critical Point Chemistry
I. Freund (Ramat-Gan, Israel)

- 13:40 Statistical Characteristics of Scattering and Signal Detection of Subsurface Radar Pulses by Buried Objects in Random Media
Y. Myazaki, K. Takahashi (Toyohashi, Japan)

- 14:00 Scattering from Irregular Dielectric Layers with Strong Reflectors
V. Freilikher, Yu. Kaganovskii (Ramat-Gan, Israel); E. Kanzieper (Trieste, Italy); D. Blumberg (Beer-Sheva, Israel)
- 14:20 Localized Optical Excitations on Self-Affine Fractal Metal Surfaces
J. A. Sánchez-Gil, J. V. García-Ramos (Madrid, Spain); E. R. Méndez (Ensenada, Mexico)
- 14:40 Effective Surface Impedance of Polycrystals under Conditions of Anomalous Skin-Effect
I. M. Kaganova (Troitsk, Russia); M. I. Kaganov (Belmont, MA)

- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Scattering from Rough Inhomogeneous Media
A. Sentenac, H. Giovannini, M. Saillard (Marseille, France)
- 15:40 A Novel Scattering Matrix Approach to Backscattering by a Linear and Reciprocal Medium
J. J. Greffet, J. B. Thibaud, R. Elaloufi, R. Carminati (Chatenay-Malabry, France)
- 16:00 On the Role of Absorption on Propagation through Dense Random Media
S. Durand, J. J. Greffet, R. Carminati (Chatenay-Malabry, France); P. Mareschal, N. Vukadinovic (Saint-Cloud, France)
- 16:20 Spectral Changes Caused by Scattering in a Double Passage Configuration
E. I. Chaikina, E. R. Méndez, H. M. Escamilla (Ensenada, Mexico)
- 16:40 Multiple Reflections and Scattering by a Concave Statistically Rough Surface
I. M. Fuks, A. G. Voronovich (Boulder, CO)
- 17:00 Anderson Localization of Surface Plasmon Polariton on a Random Metal Surface
I. Simonsen (Trondheim, Norway); T. Leskova (Troitsk, Russia); A. A. Maradudin (Irvine, CA)
- 17:20 Plasmon Resonances of Nanoparticles with Non-Regular Shapes
O. J. F. Martin, J. P. Kottmann (Zurich, Switzerland); D. R. Smith, S. Schultz (La Jolla, CA)

Session 2P2
Biomedical Imaging and Visualization

Thursday PM, 6 July 2000

Charles B

Organized by M. Miyakawa and M. Bertero
Chaired by M. Miyakawa and M. Bertero

- 13:00 Functional Imaging by Near-Infrared Transillumination
K. Shimizu, Y. Taka, Y. Kato (Sapporo, Japan)
- 13:20 Far-Infrared Imaging in the Medical and Biological Sciences
K. Mabuchi (Tokyo, Japan); K. Kondo (Himeji, Japan); N. Kakuta, A. Hoshikawa, T. Chinzei, I. Fujimasa (Tokyo, Japan)

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| <p>13:40 Optical Reconstruction of MR Images
<i>S. Ito, Y. Yamada, Y. Kamimura (Utsunomiya, Japan)</i></p> <p>14:00 Physical Basis of Skin Color and Its Clinical Evaluation
<i>M. Akimoto (Yokohama, Japan); S. Takata (Niigata, Japan); M. Hata (Kanagawa, Japan); T. Asaeda (Niigata, Japan); L. Yang (Kanagawa, Japan)</i></p> <p>14:20 Application-Oriented a-Priori Information in Microwave Radiometry
<i>F. Bardati, G. Marrocco (Rome, Italy); P. Tognolatti (L'Aquila, Italy)</i></p> <p>14:40 Emissivity and Its Influence on Quantitative Retrieval of Temperature in Microwave Radiometric Mammography (MRM)
<i>B. Bocquet, J. C. Van de Velde, R. Ringot, E. Constant (Villeneuve d'Ascq, France)</i></p> <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 The Use of Wavelets in the Operator Expansion Method for Time Dependent Acoustic Obstacle Scattering
<i>F. Zirilli (Rome, Italy)</i></p> <p>15:40 Shape Reconstruction of Strong Scatterers in E.M. Diagnostics and Monitoring
<i>R. Pierri, A. Lisenko, F. Soldovieri (Aversa, Italy)</i></p> <p>16:00 Analysis of a 2D Inverse Scattering Approach in 3D Wave Propagation
<i>K. D. Paulsen, P. M. Meaney, M. W. Fanning, N. K. Yagnamurthy (Hanover, NH)</i></p> <p>16:20 Computational and Experimental Determination of the PSF in CP-MCT
<i>M. Miyakawa, Y. Kawada, N. Ishii (Niigata, Japan); M. Bertero, P. Boccacci (Genova, Italy)</i></p> <p>16:40 MEG and MCG Measurements Using High Resolution SQUID Magnetometer
<i>K. Iramina, S. Uchida, S. Ueno (Tokyo, Japan)</i></p> | <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 Transient Response of Layered-Media Open Waveguides Using Proper and Leaky Modes
<i>G. W. Hanson (Milwaukee, WI); A. B. Yakovlev (Raleigh, NC)</i></p> <p>15:40 Generalized Transmission-Line Analysis of Diffraction by Multilayered Periodic Structures
<i>M. Jiang, S. Zhang, T. Tamir (Brooklyn, NY)</i></p> <p>16:00 Generalized Natural Waves in Open Waveguides
<i>A. I. Nosich (Kharkov, Ukraine)</i></p> <p>16:20 Guiding and Radiation Characteristics of Microstrip with Symmetric and Anti-Symmetric Loadings
<i>Y.-C. Chen, C.-K. C. Tzuan (Hsinchu, Taiwan)</i></p> <p>16:40 Nonlinear Transmittance of Irregular Fiber Structures Near The Cutoff Cross-Section of the HE12 Fiber Mode
<i>E. A. Romanova, L. A. Melnikov, E. V. Bekker (Saratov, Russia)</i></p> |
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Session 2P4 Low-Frequency Nondestructive Evaluation of Conductive Structures

Thursday PM, 6 July 2000

Somerset

Organized by D. Lesselier and L. Udpaa
Chaired by D. Lesselier and L. Udpaa

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| <p>13:00 Application of Eddy Current Testing to PSI and ISI of the Fusion Reactor
<i>Z. Chen (Tokyo, Japan); T. Uchimoto, K. Miya (Tokai, Japan)</i></p> <p>13:20 Evaluation of Eddy-Currents in a Conducting Wedge
<i>J. Bowler (Ames, IA)</i></p> <p>13:40 Inversion of Simple Cracks Using Hall Element Measurements and the Dipole Model of a Crack
<i>D. Minkov (Sendai, Japan); J. Lee (Urawa, Japan); T. Shoji (Sendai, Japan)</i></p> <p>14:00 A High-Order Boundary Perturbation Method for Scattering Calculations
<i>O. P. Bruno (Pasadena, CA); F. Reitich (Minneapolis, MN)</i></p> <p>14:20 A Fast High-Order Algorithm for the Solution of Surface Scattering Problems
<i>O. P. Bruno, L. Kunyansky (Pasadena, CA)</i></p> <p>14:40 Computation of the Electromagnetic Field Created by Different Transducers for Eddy Current Non-Destructive Evaluation of Pipes
<i>D. Prémel (Cachan, France); R. Grimberg (Iasi, Roumanie); Y. Le Biban, D. Placko (Cachan, France)</i></p> <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 On the Use of Contrast-Source Dyadic Integral Formulations for the Modeling of Eddy Current Non-Destructive Evaluation
<i>D. Dos Reis, M. Lambert, D. Lesselier (Gif-sur-Yvette, France)</i></p> <p>15:40 Numerical Procedures for ECT Based on Edge Element Integral Methods
<i>R. Albanese (Reggio Calabria, Italy); G. Rubinacci, A. Tamburrino, F. Villone (Cassino, Italy)</i></p> |
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Session 2P3 Recent Advances in Integrated Open Waveguides

Thursday PM, 6 July 2000

Charles A

Organized by G. W. Hanson and D. R. Jackson
Chaired by G. W. Hanson and D. R. Jackson

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| <p>13:00 The Changes in Leakage Effects Produced When a Circuit is Placed in a Package
<i>A. A. Oliner (Brooklyn, NY)</i></p> <p>13:20 Leaky Waves and Conditions for Exciting Them on Uniplanar Transmission Lines
<i>J. Machac, J. Zehentner (Prague, Czech Republic)</i></p> <p>13:40 Physical Contribution of an Improper-Real Solution to the Excited Fields on Printed-Circuit Transmission Lines
<i>M. Tsuji, H. Shigesawa (Kyoto, Japan)</i></p> <p>14:00 The Current on a Microstrip Line Excited from a Discontinuity
<i>D. R. Jackson (Houston, TX); F. Mesa, M. J. Freire (Seville, Spain); D. P. Nyquist (East Lansing, MI)</i></p> <p>14:20 Recent Studies on the Complex Characteristic Impedance of Leaky Printed Transmission Lines
<i>N. K. Das (Farmingdale, NY)</i></p> |
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- 16:00 Solution of 3D Inverse Problems in Eddy Current NDE Applications
Y. Li, G. Liu, B. Shanker, Y. Sun, P. Sacks, L. Udpa, S. Udpa (Ames, IA)
- 16:20 Green's Function Neural Network (GFNN) for Solving Inverse Problems in Electromagnetics
P. Ramuhalli, L. Udpa, S. S. Udpa, W. Lord (Ames, IA)
- 16:40 Differential Probes for Eddy Current NDE of Conductive Structures
R. Sikora (Szczecin, Poland); T. Chady, M. Enokizono (Oita, Japan); S. Gratkowski, M. Komorowski (Szczecin, Poland)
- 17:00 Multi-Segment Probe and Associated Signal Processing for Defect Classification in Eddy Current Tube Testing
P. Y. Joubert, D. Prémel, D. Placko (Cachan, France)
- 17:20 Numerical Modeling of Flexible Eddy Current Probes Used for Nondestructive Evaluation
S. Nath, C. Rose (Schenectady, NY); W. McKnight, W. Bantz (Cincinnati, OH)

Session 2P5a

Application of Remote Sensing and Spatial Data Analysis for Cold Regions

Thursday PM, 6 July 2000

Riverfront

Organized by G. A. Leshkevich and S. V. Nghiem
Chaired by G. A. Leshkevich and S. V. Nghiem

- 13:00 Internet Access to Great Lakes Coast Watch Environmental Data
G. A. Leshkevich (Ann Arbor, MI)
- 13:20 Great Lakes Ice Cover Mapping with Satellite Scatterometer Data
S. V. Nghiem (Pasadena, CA); G. A. Leshkevich (Ann Arbor, MI); W.-Y. Tsai (Pasadena, CA)
- 13:40 Vegetation Effect on the Seasonal Variation of Snow-Cover: The Case of the Subarctic Forest in Eastern Canada
R. Magagi, M. Bernier, C. Lagacé (Quebec, Canada)
- 14:00 Estimating Foliage Biomass and LAI of Boreal Conifer Forests from Microwave and Optical Remote Sensing Data
S. S. Saatchi, (Pasadena, CA); J. M. Chen, J. Cihlar (Ontario, Canada)
- 14:20 Atmospheric Compensation for SeaWiFS Images of Lake Superior Utilizing Spatial Information
K. D. Knobelspiesse (Rochester, NY); D. S. Warrington, J. W. Budd, S. A. Green (Houghton, MI); A. Vodacek (Rochester, NY)
- 14:40 Estimation of Snow Cover Parameters Using AVHRR Data
O. Kryvobok (Kyiv, Ukraine)

Session 2P5b

Microwave Remote Sensing of Canopy-Covered Soils

Thursday PM, 6 July 2000

Riverfront

Organized by P. Pampaloni
Chaired by P. Pampaloni and S. Paloscia

- 15:20 Estimation of Vegetation Variables Using AIRSAR Data Containing Multiple Scattering Mechanisms
M. Moghaddam, S. Saatchi (Pasadena, CA)

- 15:40 A Coherent Scattering Model of Vegetation to Interpret Interferometric Data
F. Marliani, J. A. Kong (Cambridge, MA); S. Paloscia, P. Pampaloni (Florence, Italy)

- 16:00 An Experiment of Land Cover Discrimination and Mapping by a Multiparameter SAR Data Set
N. Pierdicca (Rome, Italy); P. Basili (Perugia, Italy); P. Ciotti, F. S. Marzano (L'Aquila, Italy)

- 16:20 Testing a Microwave Model for Wheat with Different Sets of Multitemporal Data
P. Ferrazzoli, L. Guerriero (Rome, Italy); J.-P. Wigneron, A. Chanzy (Avignon, France); S. Quegan, G. Cookmartin (Sheffield, United Kingdom); A. Quesney, O. Taconet (Vélizy, France)

- 16:40 Passive Microwave Measurements over Conifer Forests at L-Band and C-Band
D. Le Vine (Greenbelt, MD); R. H. Lang (Washington, DC); N. Chauhan (Lanham, MD); E. Kim, S. Bidwell (Greenbelt, MD); M. Goodberlet (Amherst, MA); M. Haken (Greenbelt, MD)

- 17:00 Airborne Multi-Frequency L- to Ka-Band Radiometric Measurements on Forest Stands
G. Macelloni, S. Paloscia, P. Pampaloni, R. Ruisi, C. Susini (Florence, Italy)

Session 2P6

FDTD Applications

Thursday PM, 6 July 2000

Ballroom A

Chaired by M. Piket-May and J. Akerson

- 13:00 Finite Difference Time Domain Analysis of Scattering from an Object in a Random Medium
C. D. Moss, Y.-C. E. Yang, J. A. Kong (Cambridge, MA)
- 13:20 Finite Difference Techniques for Body of Revolution Radar Cross Section
J. Pacheco, R. G. Atkins (Lexington, MA); Y.-C. E. Yang (Cambridge, MA)
- 13:40 Slotted Waveguide Antenna Design Using the FDTD-Method
L. C. J. Baggen (Kamp-Lintfort, Germany); U. Goebel (Ulm, Germany); W. Simon (Kamp-Lintfort, Germany)
- 14:00 Comparison of FDTD Field Penetration Calculations with Electric and Magnetic Field Measurements Made Inside a Cavity with Apertures
B. McCabe, G. Kwan (Stratford, CT); J. K. Daher (Atlanta, GA)
- 14:20 Numerical Dispersion Analysis of the FDTD Algorithm in Anisotropic Media
C. D. Moss, F. L. Teixeira, J. A. Kong (Cambridge, MA)

- 14:40 FDTD Analysis of Printed Antenna Fed by Microstrip Line
N. Anantrasirichai (Bangkok, Thailand); T. Kunii, H. Matsui, T. Wakabayashi (Kanagawa, Japan)
- 15:00 Coffee Break (Ballroom B)

- 15:20 Numerical Analysis of the Electromagnetic Field for Rotating Object Using FD-TD Method: An Application of the Body Fitted Grid Generation with Moving Boundary
M. Kuroda, S. Kuroda (Tokyo, Japan)

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| <p>15:40 Radar Range Simulations of Ground Plane Effects and Pylon-Target Interactions Using an Unstructured Grid-Based Parallel Time-Domain CEM Code
<i>V. Shankar, A. Kabakian, C. Rowell, W. Hall (Westlake Village, CA)</i></p> <p>16:00 FDTD-Based Study of Lossy Transmission Lines Situated above Imperfect Ground and Excited by External Electromagnetic Field
<i>N. Elouazzani, D. Tahri, H. Kabbaj (Fes, Morocco); K. Elkhamlich-Drissi (Clermont Ferrand, France)</i></p> <p>16:20 FDTD Analysis of Thin-Film Capacitor
<i>Q.-X. Chu, H.-J. Ni (Xi'an, China)</i></p> <p>16:40 FDTD Method for Mobile Communications Filters
<i>M. G. Banciu, R. Ramer (Sydney, Australia)</i></p> | <p>16:20 Buried Objects Imaging by Means of GPR Array Sensor Processing
<i>L. van Kempen, H. Sahli (Brussels, Belgium)</i></p> <p>16:40 Radar Imaging of Shallow Buried Objects Using an Ultra-Wideband Technique with Specific Antennas and Synthetic Antenna Processing
<i>P. Millot, P. Borderies (Toulouse, France); E. Guillanton, E. Le Brusq, J. Y. Dauvignac, Ch. Pichot (Valbonne, France)</i></p> <p>17:00 Reconstruction of a Cylinder Surrounded by Point-like Scatterers
<i>M. Saillard, P. Vincent, G. Micolau (Marseille, France)</i></p> |
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Session 2P7

Detection and Imaging of Buried Objects by Means of Electromagnetic Inverse Techniques

Thursday PM, 6 July 2000

Skyline

Organized by S. Caorsi, Ch. Pichot, and M. Raffetto
Chaired by Ch. Pichot and S. Caorsi

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| <p>13:00 Electromagnetic Modeling and Physics-Based Processing Methods for Subsurface Object Characterization from Broadband Electromagnetic Induction Data
<i>M. Ozdemir, E. L. Miller (Boston, MA); A. Witten (Norman, OK)</i></p> <p>13:20 Evaluation of the Distributed-Source Green's Function for a Half-Space for Imaging of Buried Objects
<i>J. K. Boon (Salisbury, Australia); J. D. Cashman (New South Wales, Australia)</i></p> <p>13:40 Nonlinear Inversion Algorithm for Tomographic Reconstructions of Buried Objects
<i>I. Aliferis (Athens, Greece); C. Dourthe (Sophia Antipolis, France); J. Y. Dauvignac, Ch. Pichot (Valbonne, France)</i></p> <p>14:00 How Can Neural Networks be Used for the Electromagnetic Imaging of Buried Objects?
<i>E. Bermanni, S. Caorsi (Pavia, Italy); M. Raffetto (Genoa, Italy)</i></p> <p>14:20 Determination of the Size and Location of a Discontinuity in a Slab-like Waveguide by Inversion of Measured Scattered Wavefields
<i>A. Virgin (Marseille, France)</i></p> <p>14:40 Inverse Scattering of Dielectric Targets Embedded in a Multi-Layered Medium
<i>T. Yu, L. Carin (Durham, NC)</i></p> <p>15:00 Coffee Break (Ballroom B)</p> <p>15:20 A Novel Nonlinear Inversion of Borehole Induction Measurements Using a New Fast Forward Algorithm
<i>Q. H. Liu, Z. Q. Zhang (Durham, NC)</i></p> <p>15:40 Advanced Processing for Three-Dimensional Radar Data for Mine Detection
<i>L. Capineri, P. Falorni, L. Masotti (Florence, Italy); C. Windsor (Didcot, United Kingdom)</i></p> <p>16:00 Reconstruction of a Dielectric Cylinder Using an Approach Based on T-Operator Equation
<i>K. Ishida, H. Furukawa, M. Tateiba (Fukuoka, Japan)</i></p> |
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Session 3A1

Interaction of EM Waves with Random Media and/or Rough Surfaces

Friday AM, 7 July 2000

Parkview

Organized by M. Tateiba

Chaired by A. Ishimaru and M. Tateiba

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| <p>8:20 Brewster's Scattering Angle in Scattered Wave from Slightly Rough Metal Surfaces
<i>T. Kawanishi, M. Izutsu (Tokyo, Japan)</i></p> <p>8:40 Ray Tracing Simulation of One Dimensional Rough Surface Scattering in Case of Large Average Height and Correlation Length
<i>K.-Y. Yoon, M. Tateiba, K. Uchida (Fukuoka, Japan)</i></p> <p>9:00 Analysis of Low Grazing Angle Scattering from Composite Random Rough Surfaces Using the Steepest Descent Fast Multipole Method
<i>M. El-Shenawee (Boston, MA); V. Jandhyala (Pittsburgh, PA); E. Michielssen, W. C. Chew (Urbana, IL)</i></p> <p>9:20 Bistatic Cross-Sections of Conducting Cylinders Embedded in Continuous Random Media
<i>M. Tateiba (Fukuoka, Japan); N. Yamasaki (Tokyo, Japan); Z. Q. Meng (Fukuoka, Japan)</i></p> <p>10:00 Coffee Break (Ballroom B)</p> <p>10:20 Scattering and Diffusion of Pulse Waves in Random Media
<i>A. Ishimaru, A. Kim (Seattle, WA)</i></p> <p>10:40 Attempt to Detect Near-Axis Scattered Light by Spatial and Temporal Techniques
<i>K. Shimizu, K. Takagi, Y. Kato, M. Kitama (Sapporo, Japan)</i></p> <p>11:00 Multiple Scattered Radiation in Random Medium with Stretched Inhomogeneities
<i>G. Jandieri (Tbilisi, Georgia); Zh. Diasamidze, M. Diasamidze (Batumi, Georgia); V. Gavrilenko (Nizhni Novgorod, Russia)</i></p> |
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Session 3A2

Earth Observation by Spaceborne Radar Scatterometer

Friday AM, 7 July 2000

Charles B

Organized by W. T. Liu

Chaired by S. V. Nghiem and W. T. Liu

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| <p>8:00 SeaWinds on QuikSCAT: Overview of Sensor System and Post-Launch Calibration/Verification
<i>W.-Y. Tsai, C. Winn, J. N. Huddleston, B. Stiles, M. Spencer, S. Dunbar, S. V. Nghiem (Pasadena, CA)</i></p> |
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- 8:20 Influence of Atmospheric Stability on Scatterometer Winds
S. Tang, T.-M. Tien, J. Wu (Lewes, DE)
- 8:40 Determination of Advanced Neural Network GMFs for the NSCAT and Q.SCAT Scatterometers. Computation of Their Variances and Kps
N. Tran, C. Mejia, S. Thiria, M. Crepon, F. Badran (Paris, France)
- 9:00 Rain Flag for QuikSCAT Using an Experimental Radiometric Product
S. A. Boukabara, R. N. Hoffman (Cambridge, MA); L. Jones (Orlando, FL); D. G. Long (Provo, UT)
- 9:20 A Probabilistic Approach to QuickScat Model Function Development
M. A. Donelan, H. C. Graber, K. Shankaranarayanan (Miami, MA)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Validation of QSCAT Vector Winds with Air-Sea Interaction Spar and NDBC Ocean Buoys
H. C. Graber (Miami, FL); M. Caruso (Woods Hole, MA); N. Ebuchi (Sendai, Japan); M. A. Donelan (Miami, FL)
- 10:40 Satellite Scatterometer Observations of the Arabian Sea Somali Jet
D. Halpern, P. Woiceshyn (Pasadena, CA)
- 11:00 Monsoon Winds and Floods Observed by SeaWinds Scatterometer on QuikSCAT
S. V. Nghiem, W. T. Liu, W.-Y. Tsai, X. Xie (Pasadena, CA)

Session 3A4 Computational Wave Electromagnetics

Friday AM, 7 July 2000

Somerset

Organized by H. E. Hernandez-Figueroa

Chaired by H. E. Hernandez-Figueroa

Part I: Photonics

- 8:00 Numerical Modeling of Vertical-Cavity Surface-Emitting Lasers
G. R. Hadley (Albuquerque, NM)
- 8:20 Split-Step Time-Domain Dynamic Modeling of Semiconductor Lasers
Y. Chung, B.-S. Kim (Seoul, Korea)
- 8:40 Full-Vectorial FE-Based BPM for Photonic Devices
B. M. A. Rahman (London, United Kingdom); S. A. A. Obaya (Mansoura, Egypt); M. Rajarajan (London, United Kingdom); H. A. El-Mikathi (Mansoura, Egypt)
- 9:00 Time - Domain Finite - Difference Beam Propagation Method Based on the Generalized Douglas Scheme for a Circularly Symmetric Optical Waveguide
J. Shibayama, T. Takashi, J. Yamauchi, H. Nakano (Tokyo, Japan)
- 9:20 Novel Time-Domain Propagation Method for Integrated Optics
V. F. Rodríguez-Esquerre, H. E. Hernández-Figueroa (São Paulo, Brazil)
- 9:40 Analytical and Numerical Studies on Increasing Nonlinearity Fiber Couplers
A. S. B. Sombra, K. Z. Nóbrega, M. G. da Silva (Fortaleza, Brazil)
- 10:00 Coffee Break (Ballroom B)

Part II: Microwaves and Electronics

Session 3A3 Materials for Tunable Components and Planar Circuits - Characterization and Applications

Friday AM, 7 July 2000

Charles A

Organized by F. Huret

Chaired by F. Huret and J. P. Parneix

- 8:00 Ferromagnetic Resonance in Metallic Nanowires for Tunable Microwave Planar Applications
J. Huynen, L. Piraux, D. Vanhoenacker, A. V. Vorst (Louvain-la-Neuve, Belgium)
- 8:20 Nonreciprocal and Unidirectional Waves in Planar Dielectric Waveguides on Ferrite-Dielectric Substrate
A. G. Schuchinsky (Wellington, New Zealand); A. M. Lerer, B. A. Gribnikov (Rostov-on-Don, Russia)
- 8:40 Electrical Characterization of Liquid Crystals with Microstrip-Line Device for Microwave Applications
B. Springard, N. Tintiller, F. Huret, J. C. Carru, C. Legrand (Calais, France); P. Kennis (Villeneuve d'Ascq, France)
- 9:00 Composite BST/MgO Thin Films for Tunable Microwave Circuits
D. S. Ginley, C. M. Carlson, T. V. Rivkin, P. A. Parilla, J. D. Perkins (Golden, CO); L. C. Sengupta, L. Chiu, X. Zhang, S. He, W. Chang (Columbia, MD)
- 9:20 Silicon for Optically Tunable Microwave Integrated Circuits
B. Cabon, A. Vilcot (Grenoble, France)

- 12:00 Planar and Conformal Apertures of Smart Antennas
P. Kabacik, K. Sachse, A. Sawicki, G. Jaworski (Wroclaw, Poland)

Session 3A5
Propagation in Optical Fibers

Friday AM, 7 July 2000
Riverfront

Organized by J. K. Shaw, I. Jacobs, A. Safaai-Jazi, and R. Stolen
 Chaired by I. Jacobs and R. Stolen

- 8:20 Transmission Characteristics of Graded-Index Perfluorinated Polymer Optical Fibers
L. L. Blyer, Jr., W. R. White, W. A. Reed, M. Dueser, G. Giaretta, G. J. Shevchuk (Murray Hill, NJ)
- 8:40 Advanced Fiber Applications in All-Optical Networks
Y. Liu (Corning, NY)
- 9:00 Photorefractive Beam Coupling: A New Approach to the Measurement of the Nonlinear Refractive Index of Short (<25m) Lengths of Silica and Erbium-doped Fibers
H. Garcia, A. M. Johnson (Newark, NJ)
- 9:20 High-Speed Data Transmission and Processing
K. L. Hall (Bedford, MA)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Advances in Modeling Optical Fiber Transmission Systems
C. R. Menyuk (Baltimore, MD)
- 10:40 Nonlinear Fiber Characterization and System Optimization Using a Volterra Series
M. Brandt-Pearce, Q. Zhang (Charlottesville, VA)
- 11:00 The Dispersive Radiation in Dispersion-Managed Solitons
W. L. Kath (Evanston, IL); T.-S. Yang (Tainan, Taiwan)

Session 3A6
Methods for Earth Media Sensing

Friday AM, 7 July 2000
Ballroom A

Chaired by Q. H. Liu and L. Carin

- 8:40 Reconstruction of Microwave Cross-Section Images of Immersed Dielectric Bodies by First Order Diffraction Tomography Method
A. O. Salman, A. A. Vertiy, S. P. Gavrilov, I. V. Voynovsky (Gebze-Kocaeli, Turkey)
- 9:00 Incorporation of Vegetation Effects in a Multi-Frequency Soil Moisture Inversion from SAR
R. Bindlish, A. P. Barros (Cambridge, MA)
- 9:20 Three-Dimensional Frequency and Time-Domain Modeling of Electromagnetic Scattering from Buried Targets
X. Zhu, J. He, L. Carin (Durham, NC)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 FDTD Simulation of a Parabolic Antenna GPR Transmitter
D. Jin, C. Rappaport (Boston, MA)
- 10:40 Simulation of GPR Measurements in Dispersive Media with the PSTD Algorithm
Q. H. Liu, G.-X. Fan (Durham, NC)

- 11:00 Soil Characteristics Study: Models and Algorithms
A. O. Perov, Y. K. Sirenko, N. P. Yashina (Kharkov, Ukraine); J. Chandezon, M.-O. Monod, R. Rouveure (Clermont-Ferrand, France)

Session 3A7
The Method of Lines for Computational Electromagnetics

Friday AM, 7 July 2000
Skyline I

Organized by R. Pregla and W. Pascher
 Chaired by R. Pregla and W. Pascher

- 8:20 New Concepts in the Method of Lines
R. Pregla (Hagen, Germany)
- 8:40 Quasi-TEM Modeling of Multi-Conductor Transmission Lines Using the Method of Lines
P. Berini, C. Chen (Ottawa, Canada)
- 9:00 The Method of Lines for Stratified Structures Loaded with Inhomogeneous Dielectric Layers
F. Bilotti, A. Toscano, L. Vegni (Rome, Italy)
- 9:20 Rigorous Analysis of Non-Homogeneous Gyrotropic Devices with the Method of Lines
S. Martin (Backnang, Germany)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Application of the Adaptive Method of Lines to Nonlinear Wave Propagation Problems
W. E. Schiesser (Bethlehem, PA); A. V. Wouwer, P. Sauvez (Mons, Belgium)
- 10:40 Efficiency of MoL as Solver of Nonlinear Problems in Structures Exploiting the Cascaded Second-Order Susceptibility Effect
A. D'Orazio, V. Petruzzelli (Bari, Italy)
- 11:00 Bringing out the Method of Lines: Basic Elements of a Practical Planar 3D EM Simulator
Y. O. Shlepnev (Tucker, GA)

Session 3A8
Ultra Wide Band Radar

Friday AM, 7 July 2000
Skyline II

Organized by J. D. Taylor
 Chaired by J. D. Taylor and T. W. Barret

- 10:20 History of Ultra WideBand (UWB) Radar & Communications: Pioneers and Innovators
T. W. Barrett (Vienna, VA)
- 10:40 Investigation of Ultra-Wideband (UWB) Technology and Its Possible Application to Aircraft Surveillance
Y. Zhang, M. Geyer (Cambridge, MA); C. Primeggia (Washington, DC)
- 11:00 A Geo-Radar Intended for Detection, Control and Identification of Subsurface Objects
S. P. Lukjanov, O. V. Stoukatch, V. E. Semenchuk, A. S. Karaush, V. V. Zagorskin, R. V. Potemin (Tomsk, Russia)
- 11:20 Ultra-Wideband (UWB) Radars: Today and Tomorrow
I. J. Immoreev (Moscow, Russia); J. D. Taylor (Gainesville, FL)

Session 3P1
Advances in Computational Electromagnetics

Friday PM, 7 July 2000**Parkview**

Chaired by L. Tsang and L. Kempel

- 13:00 A Least-Squares Finite Element Method for Arbitrary Two-Dimensional Microwave Circuits
N. Yuan, J. S. Kot, A. Parfitt (Epping, Australia)
- 13:20 Least Squares Finite Element Method
L. Kempel, G. Bao (East Lansing, MI)
- 13:40 Concurrent Implementation of Complementary Operators in Frequency-Domain Methods
O. M. Ramahi (Marlborough, MA)
- 14:00 BI-RME Evaluation of 2D Entire Domain Basis Functions for the MoM Analysis of Arbitrarily Shaped Planar Structures
P. Arcioni, M. Bozzi, G. Conciauro, L. Perregiani (Pavia, Italy)
- 14:20 Comparison of Stochastic Optimization Tools for Engineering Applications
Ch. Hafner, J. Frohlich (Zurich, Switzerland)
- 14:40 Hybridization of the Finite Difference and the Method of Moments in the Time Domain for Analyzing Interaction of a Base Station Antenna with the Human Body
D. Lautru, J. Wiart (Issy Moulineaux, France); W. Tabbara (Gif-sur-Yvette, France)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Shooting Ray and Edge-Surface Interaction Coupling for Fast 3-D Analysis of Complex Targets
H. J. Mametsa, G. Ramiere, P. F. Combes, S. Bermes (Toulouse, France)
- 15:40 A Hybrid Method for Finite Size Frequency Selective Surfaces
D. Taylor (Washington, DC)
- 16:00 A Comparison Between FEM and MoM Formulations Applied to 3D Electromagnetic Scattering by Inhomogeneous Dielectrics
A. Frasson (São Paulo, Brazil), S. A. Carvalho (Fortaleza, Brazil), H. E. Hernandez-Figueroa, L. S. Mendes (São Paulo, Brazil)
- 16:20 Radiative Transfer Theory and Simulations for Applications to Emissions of Foam Covered Ocean and Snow
J. Guo, C.-T. Chen, L. Tsang, A. T. C. Chang, K.-H. Ding (Seattle, WA)
- 16:40 Recent Advances of the Method of Auxiliary Sources in Computational Electromagnetics
D. I. Kaklamani, H. T. Anastassini, P. Shubitidze (Athens, Greece)

Session 3P2
Transmission Lines, Interconnects, and Packaging

Friday PM, 7 July 2000**Charles B**

Chaired by M. Tsuk and O. Franzia

- 13:00 Design and Optimization of Novel RF Packaging Structures Using Multiresolution and Statistical Schemes
M. M. Tentzeris, D. Staciulescu, N. G. Cafaro, J. Laskar (Atlanta, GA)
- 13:20 Inductance Computation for Various Coplanar Stripline Discontinuities
C.-W. Chiu (Hsinchu, Taiwan)
- 13:40 Modelisation of 3D Packages at Millimeter Frequencies
A. Chousseaud, P. Lévèque, B. Jecko (Limoges, France); J. Y. Daden (Colombes, France)
- 14:00 Measurements of Integrated Circuit Electromagnetic Radiation with a TEM Cell
J. L. Kurtz, J. M. Cowdry (Gainesville, FL)
- 14:20 The Internal Impedance of Conductors with Arbitrary Cross Sections
M. Tsuk (Marlborough, MA)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Reduced-Order SPICE Models for Frequency-Dependent Resistance and Inductance in the Partial Element Equivalent Circuit (PEEC) Method
M. Tsuk (Marlborough, MA); J. Nittmann (Shrewsbury, MA)
- 15:40 Crosstalk due to Bend and Crossing by Non-Uniform Transmission Line Approach
C. F. Ye, T. S. Yim (Singapore)
- 16:00 Fast and Accurate Impedance Evaluation via Padé Approximations Associated with Ratios of Confluent Hypergeometric Functions
P. R. Kotiuga (Boston, MA)
- 16:20 Phase Constant Equalization of Three Coupled Microstrip Lines
I. M. Barseem (Cairo, Egypt)

Session 3P4
Progress in Inverse Methods I

Friday PM, 7 July 2000**Riverfront**

Chaired by E. Miller and R. Pierri

- 13:00 Exploiting Multiresolution Expansions in Inverse Scattering Problems: The Subsurface Sensing Case
O. M. Bucci, L. Crocco, T. Isernia, V. Pascazio (Napoli, Italy)
- 13:20 A Nonlinear Shape Reconstruction Algorithm for Cross-Borehole Electromagnetic Tomography Using Adjoint Fields and Level Sets
O. Dorn, E. Miller, C. Rappaport (Boston, MA)
- 13:40 Multiscale, Adaptive Methods for Reduced Order Inverse Scattering
E. Miller (Boston, MA)

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- 14:00 On the Feasibility of Impulse Reflection Response Data for the Two-Dimensional Inverse Scattering Problem
A. E. Yagle (Ann Arbor, MI)
- 14:20 Inverse Scattering for Time-Varying One-Dimensional Layered Media: Algorithms and Applications
A. E. Yagle (Ann Arbor, MI)
- 14:40 3D Soil Reconstruction from Binocular Stereo Disparity
R. Tebourbi (Tunis Belvedere, Tunisia); Z. Belhadj (Ghazala, Tunisia); M. R. Boussema (Tunis Belvedere, Tunisia)
- 17:00 Full-Vectorial Finite Element Modal Analysis of Optical Waveguides Incorporating Inhomogeneous Elements Across Dielectric Discontinuities
D.-U. Li, H.-C. Chang (Taipei, Taiwan)
- 17:20 Scattering of Electromagnetic Waves by Dielectric Gratings with Cylindrically Layered Media
T. Yamasaki, T. Hinata, T. Hosono (Tokyo, Japan)
- 17:40 Phase-Matching Conditions for Grating-Assisted Directional Couplers Derived by Various Coupled-Mode Formulations
K. Watanabe, K. Yasumoto (Fukuoka, Japan)
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Session 3P5 Analytical and Numerical Techniques in Photonics

Friday PM, 7 July 2000

Somerset

Organized by K. Yasumoto and H. C. Chang
Chaired by K. Yasumoto and H. C. Chang

- 13:00 Reflection and Transmission on the Photorefractive Thin Films
M. Yokota (Miyazaki, Japan)
- 13:20 Exact and Approximate Transmission Statistics for Multi-Mode Random Media
H. E. Rowe (Hoboken, NJ)
- 13:40 Analysis of Fundamental Properties of Guided Mode on Photonic Crystal Optical Waveguides
H. Ikuno, Y Naka (Kumamoto, Japan)
- 14:00 Photonic Crystals: An Electromagnetic Phenomenological Study
D. Maystre, B. Gralak (Marseille, France)
- 14:20 Analytically Approximated Solution of the Transmission Properties on Mesoscopic Scaled Optical Waveguides
M. Ohtaka, A. Miyagawa, K. Wakabayashi, A. Hashimoto (Fukui, Japan)
- 14:40 Optical Control of Leaky Millimeter Waves in the Semiconductor H-Guides
Y. Satomura (Osaka, Japan)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Polarization States of Eigenmodes in Anisotropic Magneto-optical Layers
J. Pistora, O. Barta, F. Staneck, T. Kreml (Ostrava, Czech Republic)
- 15:40 Modeling of Power Tunability and Coupling Anisotropy of Polished Fiber Couplers Involving an Intermediate Dielectric Layer Based on a Harmonics Expansion Modal Analysis
C.-P. Yu, H.-C. Chang (Taipei, Taiwan)
- 16:00 Tapered Velocity Couplers for Optical Power Limiters Composed of Nonlinear Waveguides
T. Kitamura, T. Yabu, S. Harada, M. Geshiro, S. Sawa (Osaka, Japan)
- 16:20 All-Optical Logic Element Consisting of Nonlinear Material
T. Yabu, M. Geshiro, T. Kitamura, S. Sawa (Osaka, Japan)
- 16:40 Characterization of Multimode Interference Coupler-based Devices for Compact WDM Components
C. Themistos, B. M. A. Rahman, M. Rajarajan, K. T. V. Grattan (London, United Kingdom)

- 17:00 Full-Vectorial Finite Element Modal Analysis of Optical Waveguides Incorporating Inhomogeneous Elements Across Dielectric Discontinuities
D.-U. Li, H.-C. Chang (Taipei, Taiwan)
- 17:20 Scattering of Electromagnetic Waves by Dielectric Gratings with Cylindrically Layered Media
T. Yamasaki, T. Hinata, T. Hosono (Tokyo, Japan)
- 17:40 Phase-Matching Conditions for Grating-Assisted Directional Couplers Derived by Various Coupled-Mode Formulations
K. Watanabe, K. Yasumoto (Fukuoka, Japan)
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Session 3P6 Integral Equation Methods

Friday PM, 7 July 2000

Ballroom A

Chaired by G. S. Brown and T. Sarkar

- 13:00 On the Numerical Implementation of a Modified EFIE for Scattering from Open Surface
R. J. Adams, G. S. Brown (Blacksburg, VA)
- 13:20 Issues Related to the Development of One-Way Wave Operators for Electromagnetic Scattering
R. J. Adams, G. S. Brown (Blacksburg, VA)
- 13:40 Scattering by a Wedge-On-A-Plane with a Variable Radius of Curvature Tip Using the Method of Ordered Multiple Interactions
B. Browne, G. S. Brown (Blacksburg, VA)
- 14:00 The Use of a Numerical Impedance Boundary Condition with Approximate Factorization Preconditioners for Scattering from Rough Surfaces
B. A. Davis, R. J. Adams, G. S. Brown (Blacksburg, VA)
- 14:20 Multi-Level Fast-Multipole Algorithm for Scattering from Dielectric and Conducting Targets Above or Embedded in a Lossy Half Space
J. He, L. Carin (Durham, NC)
- 14:40 Solution of Large Dense Complex Matrix Equations Using a Fast Fourier Transform (FFT) Based Wavelet-like Methodology
K. Kim, T. K. Sarkar (Syracuse, NY)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 New BZ Magnetic Integral Equation and GILD Modeling and Inversion
F. Xie (Stanford, CA); J. Li, G. Xie (Berkeley, CA)
- 15:40 The CG-NUFFT Method for the Solution of Integral Equations
X. M. Xu, Q. H. Liu (Durham, NC)
- 16:00 Single Integral Equation for Electromagnetic Scattering from Dielectric Objects Embedded in Layered Media
M. Yeung (Brookline, MA)
- 16:20 Electromagnetic Scattering Using the Current Marching Technique
B. S. Randhawa, A. A. Zaporozhets, M. F. Levy (Didcot, United Kingdom)
- 16:40 Integral Equations Revisited
P. Hillion (Le Vésinet, France)

Session 3P7
Electromagnetics Education

Friday PM, 7 July 2000

Skyline

Organized by L. Zurk

Chaired by L. Zurk and P. Haddad

- 13:20 Teaching Undergraduate Electromagnetics
J. A. Kong (Cambridge, MA)
- 13:40 Modern Graduate Electromagnetic Education: A New Perspective
W. C. Chew (Urbana, IL)
- 14:00 Relevant System-Level Design Experiences in Undergraduate Microwave Engineering Laboratories
M. A. Jensen, D. V. Arnold (Provo, UT)
- 14:20 Experiential Engineering Education
M. Piket-May, J. Chang (Boulder, CO)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Teaching Electromagnetic Theory Using Simple Differential Forms
R. Selfridge, D. V. Arnold (Provo, UT)
- 15:40 Undergraduate Electromagnetics: Discrete, Numeric, and Continuous
D. R. Voltmer (Terre Haute, IN)
- 16:00 On J. C. Maxwell's Poetry: A Study of English Verses Behind the Man of Electromagnetics
Y.-F. Tung (Hong Kong)

Session 4A1
Recent Theory of Random Surface Reflection and Propagation

Monday AM, 10 July 2000

Parkview

Organized by W. C. Meecham

Chaired by W. C. Meecham

- 8:40 The Stochastic Expansion for Reflection from Random Surfaces
W. C. Meecham, (Los Angeles, CA); W.-W. Lin (Kachsiung, Taiwan)
- 9:00 Gravitomagnetic, Gravitational and Electromagnetic Isomorphisms
I. Tolstoy (Castle Douglas, Scotland)
- 9:20 Acoustic Travel-Time Variability in Stratified Media
T. J. Eisler (Silver Spring, MD)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Irradiance Variance for Laser-Beam Propagation through Strong Turbulence by Numerical Simulation
S. M. Flatté, J. S. Gerber (Santa Cruz, CA)
- 10:40 On the Propagation and Scattering from Random Bubble Clouds in the Sea
R. R. Goodman (State College, PA); J. W. Caruthers (Stennis Space Center, MS)
- 11:00 Diffusion of Waves in Layers with Rough Interfaces
D. H. Berman (Iowa City, IA)

Session 4A2a
Medical Applications and Biological Effects

Monday AM, 10 July 2000

Charles B

Chaired by Y. Watanabe and A. Mamouni

- 8:20 Near Field Weighting Functions for Microwave Radiometry and Applications
A. Mamouni, T. Lasri, B. Bocquet, Y. Leroy (Villeneuve d'Ascq, France)
- 8:40 Conduction of Externally Generated Low-Frequency Signals through Muscles: Phantom Model and 3-D FEM Simulations
M. Popovic, A. Taflove (Evanston, IL); N. Stoykov, T. Kuiken (Chicago, IL)
- 9:00 Initial Experiment on Millimeter/Submillimeter Wave Fluoroscopy
Y. Watanabe, H. Matsubara, T. Suzuki, K. Sasaki, M. Shimizu (Saitama-ken, Japan)
- 9:20 The Non-Acoustic Echocardiography
E. M. Staderini (Rome, Italy)
- 9:40 The Laser Light Diffraction from Large and Rough Metal Sphere
D. A. Rogatkin, V. V. Tchernyi (Moscow, Russia)

Session 4A2b
Quasistatic Problems

Monday AM, 10 July 2000

Charles B

Chaired by K. O'Neill and S. F. Mahmoud

- 10:20 Quasi-Magnetostatic Solution for a Conducting and Permeable Spheroid
C. O. Ao, H. Braunsch (Cambridge, MA); K. O'Neill (Hanover, NH); J. A. Kong (Cambridge, MA)
- 10:40 Efficient Computation of Quasistationary Fields from Arbitrary Distributions of Dipoles
I. R. Ciric (Winnipeg, Canada)
- 11:00 Transient Response of a Conducting and Permeable Ring Embedded in a Lossy Earth
S. F. Mahmoud (Safat, Kuwait)
- 11:20 Dynamics of Magnetostatic Wave Solitons in the Region of Small Wave Numbers
G. N. Burlak, V. V. Grimalsky, S. V. Koshevaya, P. A. Marquez-Aguilar (Cuernavaca, Mexico); M. Torres-Cisneros (Salamanca, Mexico)

Session 4A3
Advances in Filter Technologies

Monday AM, 10 July 2000

Charles A

Organized by K. A. Zaki

Chaired by K. A. Zaki and R. Snyder

- 8:20 Advances in Filter Synthesis and Hardware Design for Wireless Applications
W.-C. Tang (Cambridge, Canada)

8:40	Applications, Requirements, and Trends of Analog Filters in Cellular and Personal Communication Systems <i>S.-W. Chen (San Diego, CA)</i>	10:40	Hybridization of the Extended Born Approximation and CG-FFHT Method <i>Z. Q. Zhang, Q. H. Liu (Durham, NC)</i>
9:00	Electronically Tunable Finline Bandpass Filters <i>Y. Rong (Columbia, MD)</i>	11:00	Quasi-Analytical Approximations and Series in Electromagnetic Modeling <i>M. Zhdanov (Salt Lake City, UT); V. Dmitriev (Moscow, Russia); S. Fang (Houston, TX); G. Hursan (Salt Lake City, UT)</i>
9:20	Generalized Multi-Layer Combiner and Dielectric Loaded Resonator for CAD of High Performance Base Station Filters <i>C. Wang (Marlboro, NJ); K. A. Zaki (College Park, MD)</i>	11:20	Principles of the Tensor Induction Well-Logging in Anisotropic Media <i>M. Zhdanov (Salt Lake City, UT); D. Kennedy (Dallas, TX); E. Peksen (Salt Lake City, UT)</i>
10:00	Coffee Break (Ballroom B)		
10:20	Present and Future Filter Design Philosophy: Paradigm Shift in Progress <i>R. V. Snyder (Butler, NJ)</i>		
10:40	Trends in High Performance Filters for Satellite Applications <i>S. J. Fieduszko, S. Holme, R. Kwok, T. Schnabel (Palo Alto, CA)</i>		
11:00	Manifold T-Junctions Optimization for Contiguous Multiplexers <i>T. Shen, X. Zhang, K. A. Zaki (College Park, MD)</i>	8:20	Integrated System Level Analysis and Simulation for High Speed Printed Circuit Boards <i>F. Y. Yuan (Camarillo, CA)</i>
11:20	Optimizing Combiner Filter Designs Using 3D Field-Solvers <i>D. G. Swanson, Jr. (Amesbury, MA)</i>	8:40	The Limits of FR-4 in Digital Transmission <i>E. Sayre (Stow, MA)</i>
11:40	Tolerance Analysis of Millimeter Wave Waveguide Diplexers <i>Y. Rong, K. A. Zaki (College Park, MD); T. Dolan (Salisbury, MD)</i>	9:00	Packaging Power and Signal Integrity with Meshed Planes <i>D. A. Lambalot, S. Chen, J. Schutt-Aine (Urbana, IL)</i>

Session 4A4 Electromagnetic Subsurface Sensing and Well Logging Techniques

Monday AM, 10 July 2000
Somerset

Organized by C. R. Liu
Chaired by C. R. Liu and M. Zhdanov

8:00	A Three-Dimensional Transmission Line Matrix Method in Cylindrical Coordinates <i>J. Li, C. Liu (Houston, TX)</i>
8:20	Electrical Parameters of Cement as Function of the Wavelengths in the Centimeter-Decimeter Wave Range <i>G. N. Lebedeva (Moscow, Russia)</i>
8:40	Perfectly-Matched-Layer (PML) Absorbing Boundary Conditions for 3-D Transmission Line Matrix (TLM) Method in Cylindrical Coordinates <i>J. Li, C. Liu (Houston, TX)</i>
9:00	Analysis of Characteristics of Georadar Antennas <i>S. V. Druchinin (Moscow, Russia)</i>
9:20	Experimental Definition of Time of Signal Delay Errors during Pulse Ground Penetrating Radar Survey of Layered Ground <i>N. Chubinsky, A. Krampuls (Dolgoprudny, Russia)</i>
10:00	Coffee Break (Ballroom B)
10:20	Models for Calculation of Dielectric Constant of Moist Sandy-Clayey Soils in Wide Range of Frequencies <i>S. V. Druchinin (Moscow, Russia)</i>

Session 4A5 Interconnects and Signal Integrity

Monday AM, 10 July 2000

Riverfront

Organized by J. Schutt-Aine
Chaired by J. Schutt-Aine and H. Grabinski

8:20	Integrated System Level Analysis and Simulation for High Speed Printed Circuit Boards <i>F. Y. Yuan (Camarillo, CA)</i>
8:40	The Limits of FR-4 in Digital Transmission <i>E. Sayre (Stow, MA)</i>
9:00	Packaging Power and Signal Integrity with Meshed Planes <i>D. A. Lambalot, S. Chen, J. Schutt-Aine (Urbana, IL)</i>
9:20	Signal Integrity Analysis of High-Bandwidth Interconnections for Computer Microprocessors <i>W. D. Becker (Poughkeepsie, NY)</i>
10:00	Coffee Break (Ballroom B)
10:20	A Multiconductor Transmission Line Model with Skin and Shunt Effects for Lossy Dielectrics for SPICE <i>D. N. Olivier (Ourense, Spain)</i>
10:40	Development of Analytical Formulas for Calculation of Frequency Dependent On-Chip Line Parameters <i>H. Grabinski, P. Nordholz (Hannover, Germany)</i>
11:00	Optical Interconnections: Perspectives and Challenges <i>D. Z. Tsang (Woburn, MA)</i>

Session 4A6 Poster Session I

Monday AM, 10 July 2000
Ballroom A

Posters are available for viewing from 9 AM to 11 AM

- Propagation in Bent Tunnels
S. Baranowski (Villeneuve d'Ascq, France); M. Agnaou (El Jadida, Maroc); P. Degauque (Villeneuve d'Ascq, France)
- Electromagnetic Scattering from Aircraft Cabin over a Testing Body
F. R. Bai, B. F. Wang, T. J. Liu (Beijing, China)
- Numerical Evaluation of Amplitude and Caustic Structures in Longitudinally Inhomogeneous Optical Waveguide with Random Fluctuations of Dielectric Parameters
M. V. Dolgikh, D. S. Lukin (Moscow, Russia)

- Analytical Approximations for Lowest Order Modes in Graded Index Dielectric Waveguides Using Stevenson's Series and Padé Approximants
V. Galdi (Boston, MA); V. Fiumara (Fisciano, Italy); V. Pierro, I. M. Pinto (Benevento, Italy)
- Conception and Equivalent Circuit Modeling of New Uniplanar Vivaldi's Antenna Associated into a Four Elements Array
J. Linardou, C. Migliaccio, J. M. Laheurte (Valbonne, France)
- Different Solutions for a Very Wide-Angle Scanning Reflector Antenna
M. E. de Lorenzo (Vigo, Spain); C. M. Rappaport (Boston, MA)
- Permeability of Non-Magnetic Composite Materials
F. Lubrano, O. Acher, A. L. Adenot, F. Duverger (Monts, France)
- Contribution of a Ground Based Radar System for Geophysics Applications and Vulcanology
C. Malassingne, F. Lemaitre, O. Pascal (Toulouse, France); P. Briole, J. Ammann (Paris, France)
- Electronically Switchable Microstrip Interdigital Bandpass Filter for Dualband Applications
F. Mahé, G. Tanné, C. Person, R. Néa (Brest, France); S. Toutain (Nantes, France)
- Microstrip Bandpass Filters Based on Rotated Excitation of Dual Mode Ring Resonators
R. Nea, G. Tanne, C. Person (Brest, France); S. Toutain (Nantes, France)
- Design of Microwave Fractal Filters
A. S. Saleh, H. Aubert (Toulouse, France)
- Circular Polarized Tilted Beam Slot Antenna for Satellite Reception
M. Vera Isasa (Vigo, Spain); M. Sierra Pérez, M. Sierra Castañer (Madrid, Spain); J. R. Rey Gómez (Vigo, Spain)
- Electromagnetic Field of an Arbitrary Source in a Time-Varying Magnetized Plasma
A. G. Nerukh, K. M. Yemelyanov (Kharkov, Ukraine); D. K. Kalluri (Lowell, MA)
- A Look at Monostatic to Bistatic Equivalence Theorems
S. J. Gabig, P. J. Collins, A. J. Terzuoli, Jr. (Dayton, OH), G. Nesti, J. Fortuny (Ispra, Italy)
- High-Impedance Ground Planes: Measuring Surface Wave Suppression
M. A. Saville, P. J. Collins (Dayton, OH)
- The Incorporation of System Dynamics Simulation to Enhance Customer-Based Functional Analysis System Technique (FAST)
J. E. Bartolomei, E. P. Smith (Dayton, OH)
- Photonic Hall Effect in Ferrofluids: Theory and Experiments
D. Lacoste (Philadelphia, PA)

Session 4A7 Electromagnetic Modelling

Monday AM, 10 July 2000

Skyline

Organized by L. W. Li and M.-S. Leong

Chaired by L. W. Li and Z. Chen

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| 8:40 | Symbolic Derivation and Numerical Computation of Dyadic Green's Functions Using Mathematica
<i>L.-W. Li, M.-S. Leong, T.-S. Yeo (Singapore)</i> |
| 9:00 | Method of Moments Analysis of Rectangular Slotted-Cavity Excited by Probe
<i>T. Lertwiriyaprapa, C. Phongcharoenpanich, M. Krairiksh (Bangkok, Thailand)</i> |
| 9:20 | Radiation Characteristics of Discrete Array Pattern Synthesis Yielding Tapered Minor Lobes Using Some Orthogonal Polynomials
<i>C. Phongcharoenpanich, T. Lertwiriyaprapa, M. Krairiksh (Bangkok, Thailand)</i> |
| 10:00 | Coffee Break (Ballroom B) |
| 10:20 | Fast Capacitance Computation for 3-D Structures Using AIM
<i>C. F. Wang, L. W. Li, P. S. Kooi, M. S. Leong (Singapore)</i> |
| 10:40 | Arbitrary High-Order FDTD Schemes with Low Numerical Dispersion
<i>J. Zhang, Z. Chen (Halifax, Canada)</i> |
| 11:00 | Electromagnetic Scattering by Arbitrarily Shaped Lossy Uniaxial Anisotropic Objects
<i>S. Liu, L.-W. Li, M.-S. Leong, T.-S. Yeo (Singapore)</i> |
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Session 4P1 Remote Sensing with AIRSAR: Data and Applications

Monday PM, 10 July 2000

Parkview

Organized by D. A. Imel

Chaired by D. A. Imel and S. Hensley

- | | |
|-------|--|
| 13:00 | Applications of Multiparameter SAR to Agribusiness
<i>J. F. Paris (Salinas, CA)</i> |
| 13:20 | Forest Vegetation Profiling with AIRSAR Polarimetric Radar Interferometry
<i>R. N. Treuhaft (Pasadena, CA); G. P. Asner (Boulder, CO); B. E. Law (Corvallis, OR)</i> |
| 13:40 | Evaluation of SAR Speckle Filters: Texture Preservation
<i>Y. H. Dong, A. K. Milne (Sydney, Australia)</i> |
| 14:00 | Forest Type Classification and Forest Structure Assessment in the Colombian Amazon Using Airborne Polarimetric SAR
<i>D. H. Hoekman, M. J. Quiñones (Wageningen, The Netherlands)</i> |
| 14:20 | Application of AIRSAR (TOPSAR) Imagery for Land Cover Classification in Tioman Island, Malaysia
<i>K. Jusoff (Sarawak, Malaysia); S. Chew (Selangor, Malaysia)</i> |

- 14:40 Polarimetric Along-Track Interferometry: First Results from an Experimental AIRSAR Mode for Ocean Wave Breaking Detection
B. D. Pollard, D. A. Imel (Pasadena, CA)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 The Pacific Rim 2000 Mission
E. O'Leary, L. Carrico, E. Chapin, A. Chu, L. D. DiDomenico, W. Fiechter, S. Hensley, D. A. Imel, Y. Kim, Y. Lou, T. Miller, D. Moller, W. Skotnicki, W. Tung (Pasadena, CA)
- 15:40 Land Cover/Land Use Maps Using AIRSAR Imagery
R. Lefevre (Los Angeles, CA); B. Fox, S. Jaroszewski, C. Jackson (Alexandria, VA)
- 16:00 Combining Landsat TM and Modified AirSAR Data to Delineate Water Bodies: A Prototype Application for SRTM Elevation Model Refinement
N. Bryant (Pasadena, CA)
- 16:20 The AIRSAR Polarimetric Interferometry Calibration
A. Chu, Y. Kim, J. J. Van Zyl (Pasadena, CA)
- 16:40 Calibration and Performance of the AIRSAR Along-Track Interferometric Processor
D. A. Imel, S. Hensley, B. Pollard (Pasadena, CA)

Session 4P2
Acoustic and Elastic Wave Propagation and Scattering

Monday PM, 10 July 2000

Charles B

Organized by S. Zerouga

Chaired by S. Zerouga and B. K. Sinha

- 13:00 An Efficient Method for Calculating Finite-Difference Seismograms after Model Alterations
J. O. A. Robertson, C. H. Chapman (Cambridge, United Kingdom)
- 13:20 Poroelastic Wave Propagation for Acoustic Landmine Detection
Y. Zeng, Q. H. Liu (Durham, NC)
- 13:40 Application of the Surface Impedance Method to Atomic Force Microscopy and Micromachined Ultrasonic Transducers
F. L. Degertekin (Atlanta, GA); G. G. Yaralioglu (Stanford, CA)
- 14:00 The Nature of the Reflection of the Fundamental Lamb Waves S0 and A0 from Cracks and Notches in Plates
M. J. S. Lowe, P. Cawley (London, United Kingdom)
- 14:20 A Finite-Difference Formulation of Borehole Wave Propagation in Prestressed Formations
B. K. Sinha (Ridgefield, CT); Q.-H. Liu (Durham, NC); T. J. Plona, K. W. Winkler (Ridgefield, CT)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Advances in the Analysis of Elastic Waves in Solids of General Anisotropy
C.-Y. Wang (Ridgefield, CT)
- 15:40 Asymptotic Analysis for Acoustic Beam Reflection and Transmission at Solid-Solid Interfaces with Vanishing Coefficients
S. Zerouga, M. Schoenberg (Ridgefield, CT)

- 16:00 Ultrasonic Signal Variance Due to Forward Scattering in Inhomogeneous Media
R. A. Roberts (Ames, IA)
- 16:20 Focused Surface Acoustic Waves on Nonpiezoelectric Materials and Application to Nondestructive Evaluation
M. Ourak (Valenciennes, France)

Session 4P3
Numerical Methods in Microstrip Antennas

Monday PM, 10 July 2000

Charles A

Organized by G. Di Massa

Chaired by G. Di Massa and S. Maci

- 13:00 Resonant Excitation of Rectangular Cavities through Slots in Side Walls
Yu. V. Shestopalov, U. V. Kotik (Moscow, Russia)
- 13:20 Vector MR Analysis of Printed Antennas
P. Pirinoli, G. Vecchi, M. Orefice, L. Matekovits (Turin, Italy)
- 13:40 Computing the Scattering Matrix for a Microstrip Structure with Coaxial Ports
J. Sarvas, M. Taskinen, S. Jarvenpaa (Helsinki, Finland)
- 14:00 Array Synthesis Including Mutual Coupling
O. M. Bucci, A. Capozzoli, G. D'Elia (Napoli, Italy)
- 14:20 Improved Spectral Iteration Technique for the Scattering by Strip Gratings
S. Costanzo, G. Di Massa (Rende, Italy)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Attractive Features of Printed Leaky-Wave Arrays in Multilayered Configurations
R. Carnesecchi (Siena, Italy); C. Di Nallo, A. Galli (Rome, Italy); S. Maci, F. Micò (Siena, Italy)
- 15:40 Microstrip Antennas for Dielectric Properties Measurements and Moisture Content Sensing
O. M. Ramahi (Marlborough, MA); S. Trabelsi, S. O. Nelson (Athens, GA)
- 16:00 High Frequency Green's Function for Patch Array Antenna
S. Maci, A. Polemi, A. Toccafondi (Siena, Italy)
- 16:20 Application of Characteristic Modes to the Analysis of Microstrip Arrays
G. Amendola (Rende, Italy); G. Angiulli (Reggio Calabria, Italy); G. Di Massa (Rende, Italy)
- 16:40 Analysis of a Microstrip Reflectarray Antenna with Loaded Stubs
G. Di Massa, M. Sisca, F. Venneri (Rende, Italy)

Session 4P4
Progress in Inverse Methods II

Monday PM, 10 July 2000

Somerset

Chaired by T. M. Habashy and A. E. Yagle

- 13:00 An Alternative to Tikhonov Regularization for Deblurring and Inverse Diffraction
H. Braunisch (Cambridge, MA); T. M. Habashy (Ridgefield, CT)

- 13:20 Simultaneous Reconstruction of Permeability and Conductivity of Steel Layers from Pulsed Eddy-Current Data
S. M. van den Berg, H. Blok (Delft, The Netherlands)
- 13:40 Electric and Electromagnetic Tomography in Volcanic Areas
D. Patella (Naples, Italy)
- 14:00 Integration of Electromagnetic Methods by a Generalized Probability Tomography Approach
D. Patella (Naples, Italy); P. Mauriello (Rome, Italy)
- 14:20 Time Domain Inverse Scattering Technique for Obtaining Microwave Properties of Near-Surface Body Tissues
M. Popovic, A. Taflove (Evanston, IL)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Stochastic GILD EM Modeling and Inversion
G. Xie, J. Li, E. Majer (Berkeley, CA); M. Oristaglio (Ridgefield, CT)
- 15:40 Discrete Layer Stripping and Feasibility Conditions for 2-D Impedance Tomography in Polar Coordinates
A. E. Yagle (Ann Arbor, MI)
- 16:00 Reflection from Inhomogeneous Structures with Time-Varying Parameters
I. Y. Vorgul (Kharkov, Ukraine)

Session 4P5
Near-Field Imaging of Electromagnetic and Magnetostatic Fields

Monday PM, 10 July 2000

Riverfront

Organized by R. Radlinski
Chaired by R. Radlinski and E. G. Williams

- 13:00 Near-Field Imaging Using Cylindrical Harmonic Back-Propagation
M. A. Morgan (Monterey, CA)
- 13:20 Surface Current Determination from Localized Scattering Measurements
M. P. Kesler, J. G. Maloney, P. H. Harms, G. S. Smith (Atlanta, Georgia)
- 13:40 Bistatic Ultra Near-Field Holography for Imaging Surface Effects
L. Medgyesi-Mitschang, P. G. Moore, D. L. Smith (Washington, DC)
- 14:00 Modal Energy in the Near Field of a Dielectric Antenna
D. Taylor, M. Parent, D. Smith (Washington, DC)
- 14:20 Magnetic Imaging by Spheroidal Multipole Analysis
A. V. Kildishev, J. A. Nyenhuys (West Lafayette, IN)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Integral Transforms of Magnetic Field Mapped on a Cylindrical Boundary: Application to Prolate Spheroidal Multipole Imaging of Magnetic Sources
A. V. Kildishev, J. A. Nyenhuys (West Lafayette, IN)
- 15:40 SQUID Magnetometers and an Inverse Model for Quantification of Hidden Corrosion
A. Abedi, J. Wikswo (Nashville, TN)
- 16:00 Null Spaces in Equivalent Current Field Generation
M. A. Morgan, D. G. Steenman (Monterey, CA)

Session 4P6
Poster Session II

Monday PM, 10 July 2000
Ballroom A

Posters are available for viewing from 2 PM to 4 PM

- MERIC: A Polarimetric Radar Station
P. Brouard, S. Attia, R. Guern (Châtillon, France)
- Scattering of HF Waves from Statistical Inhomogeneities in Ionosphere and Computation of HF Communication Paths
A. Saakian (Belmont, MA); D. K. Kalluri (Lowell, MA)
- Linear and Weakly Nonlinear Transformation of EMW in Suddenly Created Plasmas
B. V. Stanic (Belgrade, Yugoslavia); D. K. Kalluri (Lowell, MA)
- Longitudinal Propagation in a Magnetoplasma with Longitudinal Time-Varying Background Magnetic Field
T. T. Huang (Wayne, NJ); D. K. Kalluri (Lowell, MA)
- Simulation of Realistic Three-Dimensional GPR Scenarios Using the FDTD Method
L. Gürel, U. Oguz (Ankara, Turkey)
- FDTD Simulation of Electromagnetic Wave Transformation in a Dynamic, Inhomogeneous, Bounded, and Magnetized Plasma
J. H. Lee, D. K. Kalluri (Lowell, MA)
- Accurate Computation of Leaky-Wave Poles for Metal-Backed Inhomogeneous Dielectric Layers
V. Galdi (Boston, MA); I. M. Pinto (Benevento, Italy)
- An Approach to Exploit Mapping Information from Training Data
C.-H. Hsieh, M.-S. Chen (Changhua, Taiwan); M. T. Manry (Arlington, TX)
- Transient Approach for Impedance Matching of Microwave Active Circuits Using Nonuniform Transmission Lines
H. Kabbaj (Fes, Maroc); J. Zimmermann (Grenoble, France)
- Low-Band Direction Finding Using an Ensemble of Antennas
G. A. Akers, P. J. Collins, A. J. Terzuoli, Jr., K. Pasala, R. B. Penno (Dayton, OH)
- Real Time Simulation of Earned Value and Risk Burndown
J. Bartolomei, P. J. Sweeney (Dayton, OH)
- Design and Validation of an Accurate GPS Signal and Receiver Truth Model for Comparing Advanced Receiver Processing Techniques
P. M. Corbell, M. M. Miller (Dayton, OH)
- The Generation of a System Dynamic Model of a Government Acquisition Integrated Product Team to Determine Manpower Requirements
J. E. Bartolomei (Dayton, OH)
- An Empirical Prediction Model of the Performance Impacts of Material Tolerances in Frequency Selective Surfaces Using the Monte Carlo Method
M. D. Craig, P. J. Collins, A. J. Terzuoli Jr. (Dayton, OH)
- Modeling of Equivalent Single-Posts in Rectangular Waveguide for Adjustment Filters
T. P. Vuong, G. Fontgalland, R. Crampagne, H. Baudrand, C. Zanchi (Toulouse, France)

- Permeability Tensor Components of Heterogeneous and Bulk Ferrites
D. Bariou, P. Quéffélec, Ph. Gelin, M. Le Floc'h (Brest, France)
- Broad-Band Measurement Technique of Permittivity and Permeability Tensor Components of Magnetized Materials Using a Rectangular Waveguide
P. Quéffélec, D. Bariou, Ph. Gelin, M. Le Floc'h (Brest, France)

Session 4P7
Propagation Models and Channel Characterization

Monday PM, 10 July 2000

Skyline I

Chaired by K. C. Yeh and S. Kuo

- 13:20 VHF Propagation Through Forests
M. Le Palud (Guer, France)
- 13:40 Study of Multiple Diffraction with a Digital Terrain Model Using a Cascaded Cylinder and Knife-Edge Propagation Model
E. Ploubinec, G. Chassay, B. Uguen (Rennes, France); T. Marsault (Bruz, France)
- 14:00 Wave Propagation over an Irregular Terrain
K. C. Yeh, Y. (G.) Wang (Urbana, IL)
- 14:20 Ray Tracing Analysis of Indoor Propagation in Model House
K. Uchida, T. Matsunaga (Fukuoka, Japan); M. Kishimoto, S. Koga (Iizuka, Japan)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Acoustic and EM Propagation Models
A. Tolstoy (Annandale, VA)
- 15:40 Blind Eigenstructure Approach with Multiuser Interference Suppression
Y.-H. Chen, A.-C. Chang (Kaohsiung, Taiwan)
- 16:00 Characterization of Mobile Channels Using Chi-Square Goodness of Fit Test Estimator
M. Aboul-Dahab, A. Abdel-Hamid, W. M. Rabie (Alexandria, Egypt)
- 16:20 Hypothesis of Natural Radar Tracking and Communication Direction Finding Systems Affecting Hornets Flight
J. Gavan, (Holon, Israel); J. S. Ishay, (Tel-Aviv, Israel)

Session 4P8
Electromagnetic Theory and Mathematical Methods

Monday PM, 10 July 2000

Skyline II

Chaired by C. F. Chen and A. K. Jordan

- 13:00 Fast Radiation Pattern Evaluation for Lens Antennas
A. Boag (Tel Aviv, Israel); C. Letrou (Evry, France)
- 13:20 Constitutive Formulations for General Field and Wave Systems Based on the Volterra Differential Operators
D. Censor (Beer Sheva, Israel)
- 13:40 Hermite Wavelets for Numerical Computation in EM
J. S. Kot, F. R. Cooray, G. C. James (Epping, Australia)

- 14:00 A Wavelet Method for Solving Fractional Differential Equations
C.-F. Chen (Boston, MA); J.-L. Wu (Tainan, Taiwan)
- 14:20 Simple Image Principle for Geophysical Applications
J. J. Hänninen, I. V. Lindell (Espoo, Finland); R. Pirjola (Helsinki, Finland)
- 14:40 A Fast Fourier Transform Algorithm for Functions with Jump Discontinuities
G.-X. Fan, Q. H. Liu (Durham, NC)
- 15:00 Coffee Break (Ballroom B)
- 15:20 The Electromagnetic field as a Gauge Field: Superconductivity and "Massive Photons"
A. K. Jordan (Washington, DC)
- 15:40 Use of the Debye Potentials in Boundary Value Problems
M. J. Lahart (Adelphi, MD)
- 16:00 Exchange Rules Between Laplace and Other Basic Vector Operators
F. L. Chu, T. N. Chang (Taipei, Taiwan)
- 16:20 Spectral Properties of Atomic Functions up(x,y), mupn(x,y), gk(x,y) and Their Applications to Solving Electromagnetic Problems
V. F. Kravchenko (Moscow, Russia); P. E. Toroshchin (Moscow, Russia)
- 16:40 Numerical Complex Ray Tracing and Wave Field Calculation on the Basis of Complex Geometrical Optics Method
R. A. Egorchenkov, Yu. A. Kravtsov (Moscow, Russia); V. E. Volovelskii, (Orsk, Russia)

Session 5A1
New Methods, Technology, and Results in Radar Research of the Atmosphere and Ionosphere

Tuesday AM, 11 July 2000

Parkview

Organized by J. Roettger and S. J. Franke
Chaired by M. Haines

- 8:40 HF Radar Sounding of TIDs with the Use of the DPS System and Signals from Broadcasting Stations
V. S. Beley, V. G. Galushko (Kharkov, Ukraine); D. Paznukhov, B. W. Reinisch (Lowell, MA); Y. M. Yampolski (Kharkov, Ukraine)
- 9:00 Frequency-and-Angular Sounding of the Ionosphere with the Use of a DPS Receive System
V. G. Galushko, Y. M. Yampolski (Kharkov, Ukraine); B. W. Reinisch (Lowell, MA)
- 9:20 The Potential for Passive Incoherent Scatter Radar
F. D. Lind (Westford, MA); J. D. Sahr (Seattle, WA)
- 10:00 Coffee Break (Ballroom B)
- 10:20 HF Radar Magnetometry of the Ionosphere
V. G. Sinitisin, Y. M. Yampolski (Kharkov, Ukraine)
- 10:40 Ionospheric Tomography with the Global Positioning System
L.-C. Tsai, W. H. Tsai (Chung-Li, Taiwan); W. S. Schreiner (Boulder, CO)

- 11:00 New Generation Topside Sounder
*S. Ganguly (Fairfax, VA); V. Wickware (Logan, UT);
J. Goodman (Alexandria, VA)*

Session 5A2
Microwave Heating and Electromagnetic Modeling: A Review of Applicator Design

Tuesday AM, 11 July 2000
Charles B

Organized by P. Pribetich and D. Stuerga
Chaired by D. Stuerga and P. Pribetich

- 8:40 The Control of Microwave Heating: A Comparison of Numerical and Analytical Results
T. R. Merchant, B. Liu (Wollongong, Australia)
- 9:00 Theoretical Investigation on Microwave Breakdown in Output Multiplexer Filters
C. Boussavie, D. Baillargeat, S. Verdeyme, P. Guillou, C. Champeaux, A. Catherinot (Limoges, France)
- 9:20 Microwave Applicators used for Medical Applications
J. Pribetich, J. C. Camart, L. Dubous, M. Chive (Villeneuve d'Ascq, France)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Applicators with Matched Interfaces for Polymeric Material Curing
M. Delmotte, C. Moré (Paris, France)
- 10:40 Microwave Bistability and Design of Microwave Reactor with Multimodal Applicator
D. Stuerga, P. Pribetich (Dijon, France)
- 11:00 Applicators for Uniform Microwave Heating
I. Zahreddine (Beirut, Lebanon)
- 11:20 Full-Wave Analysis of Travelling Waves Applicators
A. Calmels, D. Stuerga, P. Pribetich (Dijon, France)
-

Session 5A3
Planar Antenna Technology

Tuesday AM, 11 July 2000
Charles A

Chaired by J. Mosig

- 8:40 Microstrip Antennas in Multilayered Environments Including Vertical Metallizations
T. M. Grzegorczyk, J. R. Mosig (Lausanne, Switzerland)
- 9:00 Designing Waveguide-Fed Planar Antenna Arrays by Combining Planar and 3D-Field Simulation Tools
S. Holzwarth, W. Simon, D. Heberling (Kamp-Lintfort, Germany)
- 9:20 Design of a Broadband U-Slot Fed U-Slot Patch Antenna
C. Laumond, Ph. Dufrane, F. Jecko (Limoges, France)
- 10:00 Coffee Break (Ballroom B)
- 10:20 A Novel E-Shaped Broadband Microstrip Patch Antenna
Q. Shen, B. L. Ooi, M. S. Leong (Singapore)
- 10:40 Circularly Polarised Low IMD Integrated Antenna
C. C. Yang, W. S. Chan, W. L. Chan (Hong Kong)
- 11:00 Enhancement of Bandwidth of Rectangular Microstrip Antenna by Feeding and Gap-Coupled Techniques
S. N. Mulgi, R. M. Vani, B. S. Makal, P. V. Hunagund,

S. F. Farida (Gulbarga, India)

- 11:20 Scattering of Rectangular Microstrip Patch Using Acceleration Technique of Entire Domain Basis Function
S.-O. Park, C.-B. Chae, K.-Y. Park (Taejon, Korea)
-

Session 5A4
Cavity Scattering Problems

Tuesday AM, 11 July 2000
Somerset

Organized by R. J. Burkholder and F. Obelleiro
Chaired by R. J. Burkholder and F. Obelleiro

- 8:40 A Connection Algorithm to Extend the Applicability of the IPO Method to Long Cavities
F. Obelleiro, J. L. Rodriguez, M. R. Pino (Vigo, Spain)
- 9:00 Analysis of the Scattering from Cavities Using a Time-Frequency Distribution Approach
A. Moghaddar (Powell, OH)
- 9:20 Electromagnetic Scattering from Large Jet Engine Inlets and Nozzles
R. Pearlman, J. Karty (St. Louis, MO)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Integral Equation Technique for Analysis of Scattering from Open-Ended Cavities with Cylindrically Periodic Terminations
Z. Xiang, T.-T. Chia (Singapore)
- 10:40 Parallel Computation of Scattering by Deep Cavities
J. Liu, J. M. Jin (Urbana, IL)
- 11:00 SSOR Applied to the Iterative Physical Optics Algorithm for Cavity Scattering Problems
R. J. Burkholder (Columbus, OH)
-

Session 5A5
Imaging from Scattered Fields

Tuesday AM, 11 July 2000
Riverfront

Organized by M. A. Fiddy and R. V. McGahan
Chaired by M. A. Fiddy and R. V. McGahan

- 8:20 Detecting 1/10th Scale Structures Embedded in Dielectric Media Using an X-Band Radar
J. D. Kekis, R. H. Giles (Lowell, MA)
- 8:40 Imaging Targets in Strongly Scattering Backgrounds from Limited Backscatter Data
M. Testorf, A. Morales (Lowell, MA); R. V. McGahan (Hanscom AFB, MA); M. A. Fiddy (Lowell, MA)
- 9:00 Importance of Phase Unwrapping Prior to Cepstral Filtering for Imaging Strongly Scattering Targets
A. Morales, M. Testorf (Lowell, MA); R. V. McGahan (Hanscom AFB, MA); M. A. Fiddy (Lowell, MA)
- 9:20 Background Suppression in Bistatic Chamber Measurements
R. A. Marr, U. H. W. Lammers (Hanscom AFB, MA)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Ground Effects on High Range Resolution Profiles of Moving Ground Targets
K. H. Ding, K. T. Kim (Hanscom AFB, MA)

- 10:40 Coherent Scattering from a Random Medium Layer with Rough Boundaries
S. Mudaliar (Waltham, MA)
- 11:00 A New Formalism for Time Dependent Electromagnetic Scattering from a Bounded Obstacle
F. Zirilli (Rome, Italy)
- 11:20 Reconstruction of Rayleigh Obstacles
G. F. Crosta (Milan, Italy)

Session 5A6
Time Domain Boundary Integral Equation Techniques

Tuesday AM, 11 July 2000

Ballroom A

Organized by B. Shanker

Chaired by B. Shanker and E. Michielssen

- 8:20 A High-Order Galerkin Method for the Time Domain Magnetic Field Integral Equation
M. J. Bluck, S. P. Walker (London, United Kingdom)
- 8:40 Efficient Analysis of Transient Electromagnetic Scattering from Random Rough Surfaces
B. Shanker (Ames, IA); A. A. Ergin, E. Michielssen (Urbana, IL)
- 9:00 Integral Equation-Based Time Domain Solution for VLSI Circuits Using the Partial Element Equivalent Circuit Approach
A. R. Ruehli (Yorktown Heights, NY); A. C. Cangellaris, K. Coperich (Urbana, IL)
- 9:20 Hallén-Type Integral Equation for Transient Scattering by a Flat Plate; Formulation and Solution in the Space-Time Domain
J. G. A. van Riswick, A. G. Tijhuis (Eindhoven, The Netherlands)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Nonreflecting Boundary Conditions, Geometry Representation, and High-Order Discretization for Acoustic Scattering
B. Alpert (Boulder, CO)
- 10:40 Time Domain Analysis of Composite Arbitrarily-Shaped Complex Structures Utilizing an Implicit Method
W. Lee, T. K. Sarkar (Syracuse, NY); S. M. Rao (Auburn, AL)
- 11:00 The Validation of Time Domain Integral Equation Methods
S. M. Booker, P. D. Smith (Dundee, Scotland)
- 11:20 Marching-on-in-Frequency Approach to Modeling the Transient Scattering by a Flat Plate
M. C. van Beurden, A. G. Tijhuis (Eindhoven, The Netherlands); A. P. M. Zwamborn (Gravenhage, The Netherlands)
- 11:40 On the Use of Spatiotemporal Wavelet Expansions in Method of Moments Solutions for Time-Domain Integral Equations
Y. Shifman, Y. Levitan (Haifa, Israel)

Session 5A7
Gravito-Electrodynamics and Relativistic Electrodynamics for Special Electric or Magnetic Configurations

Tuesday AM, 11 July 2000

Skyline I

Organized by H. Kikuchi and J. Chiba

Chaired by H. Kikuchi and J. Chiba

- 8:20 Charged Dust Dynamics in Planetary Magnetospheres
M. Horányi (Boulder, CO)
- 8:40 Gravito-Electrodynamics of Dust in Periodical Electric Cusps and Mirrors with Electric Reconnection and Its Applications to Planetary Dust Layers and Rings
H. Kikuchi (Tokyo, Japan)
- 9:00 The Concept and Basic Properties of an Electric Undulator
H. Kikuchi (Tokyo, Japan)
- 9:20 A Generalization of the Riemannian Space
S. Ohkuro (Hachinohe, Japan)
- 10:00 Coffee Break (Ballroom B)
- 10:20 Approach to Discrete Stochastic Processes from the Viewpoint of Newton-Cartan Theory of Gravity
T. Obata (Maebashi, Japan)
- 10:40 Gravitational Field Turbulence Due to Large Seismic Waves
J. Chiba (Sendai, Japan); T. Obata (Toribamachi, Japan)
- 11:00 Absorption of Gravitational Waves by Water
J. Chiba (Sendai, Japan); T. Obata (Toribamachi, Japan)
- 11:20 Some Recent Developments in Gravitoelectrodynamics
D. Maravilla (Código, Mexico)

Session 5A8
The FDTD Method in EMI, Interconnects, Packaging and Materials

Tuesday AM, 11 July 2000

Skyline II

Organized by O. M. Ramahi

Chaired by G. Amendola and O. Ramahi

- 10:20 FDTD Analysis of Power Dissipation in VLSI Lossy Interconnects
G. Amendola, G. Cappuccino (Rende, Italy); O. M. Ramahi (Marlborough, MA)
- 10:40 FDTD Analysis of Conventional and Novel Delay Lines
O. M. Ramahi (Marlborough, MA)
- 11:00 FDTD Modeling of EMI Emissions Due to a Signal Via Transition Through Power/Ground Planes on Printed Circuit Boards
B. Archambeault (Research Triangle Park, NC); W. Cui, J. L. Drewniak (Rolla, MO)
- 11:20 Dynamic Modeling of Power Distribution Grids Using the FDTD Method
O. M. Ramahi (Marlborough, MA); O. Franzia (Shrewsbury, MA)

Session 5P1

Techniques in Active Radio Observations of Surfaces and Atmospheres

Tuesday PM, 11 July 2000

Parkview

Organized by T. Hagfors

Chaired by T. Hagfors and L. Tyler

- 13:00 Planetary Radar Mapping at Arecibo Using Delay-Doppler Techniques
J. K. Harmon (Arecibo, PR)
- 13:20 Alternating Codes
T. Nygren (Oulu, Finland); M. Lehtinen (Sodankylä, Finland)
- 13:40 Radar Reconnaissance of Small Bodies and Icy Surfaces in the Solar System
S. J. Ostro (Pasadena, CA)
- 14:00 Simulation of the Radar Imaging of the Surface of Titan
R. Orosei (Rome, Italy); J. I. Lunine (Tucson, AZ); P. T. Melacci (Perugia, Italy); G. Picardi, R. Seu (Rome, Italy)
- 14:20 The Doppler Beam Sharpened Concept Applied to the Bistatic Altimetry
G. Picardi, R. Seu, S. Sorge (Rome, Italy)
- 14:40 Subsurface Volcanic Processes in the Galapagos Islands from Interferometric SAR
H. A. Zebker, P. Segall, S. Jonsson (Stanford, CA)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Modeling the Subsurface Structure of the Icy Galilean Satellites from Multi-Wavelength Radar Observations
G. J. Black (Green Bank, WV); D. B. Campbell (Ithaca, NY)
- 15:40 Extremely Oblique Bistatic Surface Scattering Using Mars Global Surveyor
R. A. Simpson, G. L. Tyler (Stanford, CA)
- 16:00 Eliminating phase code side-lobes and other enw coding methods
M. Lehtinen (Sodankylä, Finland)
- 16:20 MIDAS-W: Incoherent Scatter Data Acquisition Using a Workstation-Based System
P. J. Erickson, J. M. Holt (Westford, MA); T. Grydeland (Tromsø, Norway)
- 16:40 Radio Science Observations with Mars Global Surveyor
G. L. Tyler, D. P. Hinson, R. A. Simpson, J. D. Twicken (Stanford, CA); D. E. Smith (Greenbelt, MD); W. L. Sjogren (Pasadena, CA); G. Balmino (Toulouse, France)
- 17:00 Results from the Orsted-GPS Occultation Experiment
S. Syndergaard, M. B. Sorensen, G. B. Larsen (Copenhagen, Denmark); X.-J. Zhang (Wuhan, China); J. Grove-Rasmussen, P. Hoeg (Copenhagen, Denmark)

Session 5P2

Dielectric Resonators and Their Applications in Filters and Antennas

Tuesday PM, 11 July 2000

Charles B

Organized by D. Mirshekar-Syahkal

Chaired by D. Mirshekar-Syahkal

- 13:00 Needs of Small, Low-Cost and High-Performance Antenna-Filters in Terrestrial Radio Equipment for Mobile Telecommunication Industry
G. Mura (Kista, Sweden); R. Piirainen (Oulu, Finland)
- 13:20 Dielectric Loss of Oxide Single Crystals and Polycrystalline Analogues from 10K-320K
N. McN. Alford, J. Breeze, S. J. Penn, J. C. Gallop (London, United Kingdom)
- 13:40 Temperature Compensated, Very High Q Dielectrics for Ku and Ka-Band Communications
J. Breeze, S. J. Penn, M. Poole, S. J. Webb, N. McN. Alford (London, United Kingdom)
- 14:00 Full-wave Modeling of Generalized Cylindrical Multilayer Dielectric Structures and Its Applications in Tunable Dielectric Resonators
T. Shen, K. A. Zaki (College Park, MD); C. Wang (Marlboro, NJ)
- 14:20 Dielectric-Loaded Dual-Mode Resonators Filters in Rectangular Enclosures without Tuning
F. Abbas, R. Yan (Swindon, United Kingdom)
- 14:40 Resonant Frequencies and Coupling Coefficients for Dielectric Loaded Coaxial Resonators
J. M. Chuma, D. Mirshekar-Syahkal (Colchester, United Kingdom)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Modeling of Dielectrically Loaded Bifilar and Quadrifilar Antennas
O. P. Leisten, E. Agboraw (Northampton, United Kingdom); J. C. Vardaxoglou (Loughborough, United Kingdom); P. McEvoy (Northampton, UK); M. Cai, A. Wingfield (Loughborough, United Kingdom)
- 15:40 Dielectric Resonator Antennas and Arrays
Z. Wu, L. E. Davis, G. Drossos (Manchester, United Kingdom)
- 16:00 Modeling of Microring Resonators for Optical Channel Dropping Filters
W. Pascher (Hagen, Germany)
- 16:20 Modeling of Planar TE Mode Dielectric Resonators for Filter and Diplexer Applications
L. Vietzorreck (München, Germany)

- 16:40 Miniaturized Microwave Filters Using High Qu Planar Dielectric Resonators
H. Blondeaux, J. Galiere, S. Bila, D. Baillargeat, S. Verdeyme, P. Guillot (Limoges, France)
- 17:00 Coplanar Waveguide Fed Dielectric Resonator Antenna
Y. M. M. Antar (Kingston, Canada); M. S. Al Salameh (Irbid, Jordan); G. Séguin (Saint Hubert, Canada)
- 17:20 Accurate Computation of Radiation Pattern of the Tapered Slot Antenna (TSA)
S.-M. Jang, T. K. Sarkar (Syracuse, NY)
- 17:40 Complex Modes in Dielectric Loaded Waveguide Resonators
F. A. Fernandez (London, United Kingdom); D. Mirshekar-Syahkal (Colchester, United Kingdom)

Session 5P3 Time Varying Medium

Tuesday PM, 11 July 2000

Charles A

Organized by D. Kalluri

Chaired by D. Kalluri and R. Prasad

- 13:00 Frequency Transformer: A Switched Magnetoplasma Medium
D. K. Kalluri (Lowell, MA)
- 13:20 Experiments in Frequency Shifting by Pulsed Plasma Production and Other Media Modification Techniques
I. Alexeff (Knoxville, TN); D. K. Kalluri (Lowell, MA); S. Kuo (Farmingdale, NY)
- 13:40 A Transmission Line Filled with Fast Switched Periodic Plasma as a Wideband Frequency Transformer
S. P. Kuo, D. Bivolaru, L. Orlick (Farmingdale, NY); I. Alexeff (Knoxville, TN); D. K. Kalluri (Lowell, MA)
- 14:00 Wave Propagation in a Transient Plasma Medium
V. Goteti (Normal, AL)
- 14:20 Frequency Shifting of Low Frequency Electromagnetic Waves Using Magnetoplasmas
S. Madala (Acton, MA); D. K. Kalluri (Lowell, MA)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 An Overview of Radio Propagation Aspect from Mobile Communications Perspective
R. Prasad (Aalborg, Denmark)
- 15:40 An Overview of the Land Mobile Satellite Communication Channel and Design Implications
J. Farserotu (Neuchatel, Switzerland)
- 16:00 94 GHz Channel Behaviour for Satellite Communications
A. Bosisio (Milan, Italy); S. De Fina, M. Ruggieri (Rome, Italy)
- 16:20 An Overview of 60 GHz Channel Model for Wireless Multimedia Communications
D. Mati (Delft, The Netherlands); R. Prasad (Aalborg, Denmark)

Session 5P4 Interferometric and Signal Processing Techniques in Remote Sensing and Radar

Tuesday PM, 11 July 2000

Somerset

Chaired by Y. E. Yang and Y. Hara

- 13:00 Multi-Aspect Classification of Airborne Targets via Physics-Based Hidden Markov Models and Matching Pursuits
P. Bharadwaj, P. Runkle (Durham, NC); J. A. Berrie (Dayton, OH); J. A. Hughes (Wright-Patterson AFB, OH); L. Carin (Durham, NC)
- 13:20 Extended Period Radar Observations with the Frequency Domain Interferometric Imaging (FII) Technique
H. Luce, M. Yamamoto, S. Fukao (Kyoto, Japan)
- 13:40 On the Roles of Independent Component Analysis in Remote Sensing
C. H. Chen, X. Zhang (N. Dartmouth, MA)
- 14:00 Spectral Analysis from Nonuniformly Sampled Data Using a Least Square Method for Applications in Multiple PRI System
J. Koh, T. K. Sarkar (Syracuse, NY); M. C. Wicks (Rome, NY)
- 14:20 Estimation and Prediction of Soil Moisture from Multi-Temporal Radar Measurements Based on Kalman Filter Technique
K. S. Chen, Y. C. Tzeng (Chung-Li, Taiwan); J. C. Shi (Santa Barbara, CA)
- 14:40 Determination of the Target Position by the Synthetic Aperture Radar Using a Genetic Algorithm
S. Kargin, B. Yazgan, T. Günel, S. Kent, M. Kartal (Istanbul, Turkey)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 A Further Study on the Radiometric Sensing of Land Surface Parameters by a Neural Network Approach
Y.-A. Liou, K. S. Chen, Y. C. Tzeng (Chungli, Taiwan)
- 15:40 A Weighted Least Squares Phase Unwrapping Technique Using Residues for SAR Interferometry
Y. Hara (Kamakura, Japan); Y. E. Yang, J. A. Kong (Cambridge, MA)
- 16:00 Quantitative Effect of Wavelet Denoising on Phase Unwrapping of SAR Interferograms
H. Braunisch, B.-I. Wu, J. A. Kong (Cambridge, MA)
- 16:20 Time-Domain Computer Simulation of Synthetic Aperture Radar (SAR) Image for Rough Surface
Y. Zhang, B.-I. Wu, J. A. Kong (Cambridge, MA); Y. Hara (Kamakura, Japan)
- 16:40 Imaging of Small Bodies with Single-Baseline Radar Interferometry
J. L. Margot, M. C. Nolan (Arecibo, PR)
- 17:00 Interferometric Coherence of Forested Areas over Large Frequency Band
C. Ruiz, P. Borderies, I. Chénerie, C. Proisy, E. Mougin (Toulouse, France)

- 17:20 High Intelligent Neural Network Trained by a Modified Error Back Propagation Training (EBPT) Algorithm
M. A. Deyab (Cairo, Egypt)
- 17:40 The Passive Tracking Adaptive Algorithm of the Moving Object by UHF Beyond-the-Horizon Three Position Bearing System
V. I. Tislenko, V. A. Kurakov, G. S. Sharygin (Tomsk, Russia)
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Session 5P5
Optical Interconnection Technology

Tuesday PM, 11 July 2000

Riverfront

Organized by E. Griese

Chaired by E. Griese

- 13:20 Multimode Fiber Interconnect for Parallel, High Bandwidth–Short Distance Data Link
U. W. Krackhardt, R. Klug, K.-H. Brenner (Mannheim, Germany)
- 13:40 From Electrical Wiring to Optical Links: Some Technological Aspects
D. Krabe (Berlin, Germany); E. Strake (Hildesheim, Germany)
- 14:00 Reducing Communication and Memory Latency in Computer Systems Using Opto-Electronic Interconnections
P. Lukowicz (Zurich, Switzerland)
- 14:20 Error and Flow Control Protocols for Terabit Optical Networks
T. Szymanski (Hamilton, Canada)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Modeling and Simulation of Optical MEMS for Free Space Switching
S. P. Levitan, J. A. Martinez, T. P. Kurzweg (Pittsburgh, PA); P. J. Marchand (San Diego, CA); D. M. Chiarulli (Pittsburgh, PA)
- 15:40 Time Domain Analysis of Optical Multimode Interconnects
E. Griese, A. Himmeler, J. Schrage (Paderborn, Germany)
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Session 5P6
Direct and Inverse Methods for Scattering and Propagation from Special Structures in Complex Media

Tuesday PM, 11 July 2000

Ballroom A

Organized by T. Sengör

Chaired by T. Sengör, L. B. Felsen, and S. P. Skobolev

Part I: Direct Problems

- 13:00 Radiation from an Open-Ended Hard Strip-Loaded Waveguide
S. P. Skobolev (Moscow, Russia); P.-S. Kildal (Gothenburg, Sweden)
- 13:20 Electromagnetic Scattering from 3-D Doubly Periodic Structures Using a MPIE Formulation with Optimized Complex Images
R. M. Shubair (Sharjah, United Arab Emirates)

- 13:40 Analysis of Electromagnetic Radiation from Composite Lossy Material Bodies Using WIPLM
B. Kolundjiza, A. R. Djordjevic (Belgrade, Yugoslavia); T. K. Sarkar, J. Zhang (Syracuse, NY)
- 14:00 Optimization of Antenna Array Patterns in the Presence of Near-Zone Scatterers: Three-Dimensional Vector Analysis
M. Vicente-Lozano, F. Ares Pena, E. Moreno (Santiago de Compostela, Spain)
- 14:20 A Heuristic UTD Diffraction Coefficient for Lossy Dielectric Wedges Including Multiple Internal Reflections
R. Matschek (Belfort, France)
- 14:40 Propagation Constant of the Coherent Wave in a Medium Containing Spheroidal Particles
K. Demililer, T. Sengör (Besiktas, Turkey)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Propagation of Surface Waves in Grounded Cylindrical Anisotropic Substrates
G. A. Kyriacou, A. A. Mavrides, S. Diamandis (Xanthi, Greece); J. N. Sahalos (Thessaloniki, Greece)
- 15:40 A Rectangular Waveguide Partially Filled with Frequency Dependent Dielectric Materials
R. Ramiz, T. Sengör (Istanbul, Turkey)
- 16:00 Alternative Methods for Wave Propagation in Graded Index Waveguides (Revisited): I. Uniform
L. B. Felsen, V. Galdi (Boston, MA)
- 16:20 Alternatives Methods for Wave Propagation in Graded Index Waveguides (Revisited): II. Tapered
V. Galdi, L. B. Felsen (Boston, MA)
- Part II: Inverse Problems**
- 16:40 Regularisation Technique for the Inverse Problems of HF Ionospheric Soundings
P. F. Denisenko (Rostov-on-Don, Russia); N. Nastasyina-Beloff, M. P. Gough (Brighton, United Kingdom)
- 17:00 First Order Multiple Inversion of Randomly Distributed Particles in a Dispersive Slab
T. Sengör (Istanbul, Turkey)
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Session 5P7
Non-Gaussian Statistics in Scattering and Propagation

Tuesday PM, 11 July 2000

Skylane

Organized by E. Jakeman and K. I. Hopcraft

Chaired by E. Jakeman and K. I. Hopcraft

- 13:00 Scattered Intensity Statistics of Particles Illuminated by a Gaussian Beam
K. I. Hopcraft, E. Jakeman (Nottingham, United Kingdom); P. J. Roberts (Malvern, United Kingdom)
- 13:20 Statistics of the Cross-Polarized Scattered Intensity from Particulate Surfaces
E. M. Ortiz, F. González, F. Moreno (Santander, Spain)
- 13:40 Properties of Random Walks Influencing the Convergence to K-Distributed Noise
R. M. J. Tanner, K. I. Hopcraft, E. Jakeman (Nottingham, United Kingdom)

- 14:00 New Results in Applied Scattering Theory I: The Physical-Statistics (P-S) Method, Including Pdf's for Strong Multiple Scatter vs. Classical Statistical Physics (S-P) Approaches
D. Middleton (New York, NY)
- 14:20 New Results in Applied Scattering Theory II: Born vs. Rytov vs. Exact Strong-Scatter Probability Distributions
D. Middleton (New York, NY)
- 14:40 Design of One-Dimensional Diffusion of Light that Produce Circularly-Symmetric, Band-Limited, Uniform Diffusers on Rotation
A. V. Shchegrov (Rochester, NY); A. A. Maradudin (Irvine, CA); E. R. Méndez (Ensenada, Mexico)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 The Design of Two-Dimensional Random Surfaces that Are Band-Limited Uniform Diffusers within a Circular Region
A. A. Maradudin (Irvine, CA); E. R. Méndez (Ensenada, Mexico); A. V. Shchegrov (Rochester, NY)
- 15:40 Intensity-Weighted Phase-Derivative Statistics
S. M. Watson, E. Jakeman (Nottingham, United Kingdom)
- 16:00 Phase Factors Representation for EM Scattering from a Rough Perfect Conductor
V. I. Tatarskii (Boulder, CO)
- 16:20 EM Scattering by Non-Gaussian Anisotropic Sea Surface
V. V. Tatarskii, V. I. Tatarskii (Boulder, CO)
- 16:40 Statistics of Natural Images
E. R. Pike (London, United Kingdom)
- 17:00 Phase-Sensitive Measurement of Laser Light Scattering by a Random Phase-Changing Screen
K. D. Ridley (Malvern, United Kingdom); E. Jakeman (Nottingham, United Kingdom)

Session 6A1 SAR Simulation and Modelling

Wednesday AM, 12 July 2000

Parkview

Organized by F. Posa
 Chaired by F. Posa

- 8:40 Simulation of the Cassini Radar Data on Titan
D. Casarano (Rotondella, Italy); L. Dente (Bari, Italy); R. L. Kirk (Flagstaff, AZ); R. D. Lorenz (Tucson, AZ); F. Posa (Bari, Italy); S. D. Wall (Pasadena, CA)
- 9:00 The Rotational State Measurement of Titan by Means of the Cassini Radar
B. Bertotti (Pavia, Italy); L. Iess (Rome, Italy); P. T. Melacci (Perugia, Italy); G. Picardi, R. Seu (Rome, Italy)
- 9:20 Cassini Radar Mission: Reconnaissance of Titan
S. Wall, L. Roth (Pasadena, CA); R. Lorenz (Tucson, AZ); C. Elachi (Pasadena, CA)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 ARCHEO Sub-Surface Imaging SAR Simulation Algorithms
A. Torre, M. N. Ferrara (Rome, Italy)
- 10:40 Optimizing Performance of ENVISAT ASAR ScanSAR Modes
A. M. Guarneri (Milan, Italy); Y.-L. Desnos (Bari, Italy); P. Guccione (Noordwijk, The Netherlands)

- 11:00 Scattering Center Models for Feature Extraction in SAR Imagery
R. Moses, L. Potter, B. Rigling, Y. Akyildiz (Columbus, OH)

Session 6A2 EM Waves in Composite and Complex Media

Wednesday AM, 12 July 2000

Charles B

Chaired by Y. Miyazaki and M. L. Oristaglio

- 8:00 EM Analysis in Complex Laminates: Source Excitation and Effective Modes
V. Lomakin, B. Z. Steinberg, E. Heyman (Tel-Aviv, Israel)
- 8:20 Conversion of Plane Polarization to Circular Polarization in Microwave Chiral Materials
I. A. Khan, S. C. Raghavendra, R. L. Raibagkar, A. B. Kulkarni (Karnataka, India)
- 8:40 Experimental and Theoretical Study of Coupled Volume and Surface Infrared Scattering by Rough Dielectric Films with Dielectric Inclusions
S. Mainguy (Le Barp, France); N. Vukadinovic, P. Mareschal (Saint-Cloud, France); G. Le Blevennec, J.-F. Salas (Monts, France)
- 9:00 Scattering from Cylindrical Chiral Objects Loaded with Multiple Strips: The Case of TE-Wave Incidence
W.-Y. Yin, L.-W. Li, T.-S. Yeo, M.-S. Leong (Singapore)
- 9:20 Electromagnetic Scattering by a Multilayer Uniaxial Bi-anisotropic Cylinder
M. Zhang, X.-F. Pan, W. Hong (Nanjing, China)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Effective Constitutive Parameters of the FF/FB and Wire Media
L. Guo, M. Zhang, W. Hong (Nanjing, China)
- 10:40 A Contribution to the Theory of Biaxially Anisotropic Media
G. Fikioris, P. G. Cottis, A. D. Panagopoulos (Athens, Greece)
- 11:00 New Types of Orthonormal Electromagnetic Beams in Complex Media and Free Space
G. N. Borzdov (Minsk, Belarus)
- 11:20 The Application of Orthonormal Electromagnetic Beams to Characterizing Complex Media
G. N. Borzdov (Minsk, Belarus)

Session 6A3 Antenna Technology I

Wednesday AM, 12 July 2000

Charles A

Chaired by R.-S. Chu and S. Y. Peng

- 8:20 Ceramic Antenna Analysis, Design and Modeling Study
R.-S. Chu, S. Y. Peng (Escondido, CA); K.-F. Fuh (Hsinchu, Taiwan)
- 8:40 Printed Meanderline Antennas for Wireless Communication Application
S. Y. Peng, R.-S. Chu (Escondido, CA)
- 9:00 Wideband Short-Range Radio Devices and Their Proliferation
G. Oswald (Cambridge, MA)

- 9:20 Radiation Characteristics of Dielectric Loaded Pyramidal Horn Antenna
P. M. Hadalgi, S. F. Farida, P. V. Hunagund (Gulbarga, India)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 A Novel Wide Aperture CPW-FED Antenna
M. Miao, B. L. Ooi, M. S. Leong (Singapore)
- 10:40 Investigation of Scanning and Multibeam Reflector Antennas by the Methods of Theory of Wave Catastrophes
E. B. Ipatov, E. A. Palkin (Dolgoprudny, Russia)
- 11:00 Parametrical Synthesis of Impedance Antennas on the Basis of Strict Numerical-Analytical Method
V. L. Danilchuk (Novgorod, Russia)
-

Session 6A4 High Frequency Techniques

Wednesday AM, 12 July 2000

Somerset

Organized by S. Maci

Chaired by S. Maci and R. Tiberio

- 8:20 Time Domain Green's Function for an Infinite Sequentially Excited Periodic Planar Array of Dipoles
F. Capolino (Siena, Italy); L. B. Felsen (Boston, MA)
- 8:40 Asymptotic Localisation in a Phase-Space Representation of the Diffraction-Limited Field of a Focused Reflector
J. M. Arnold (Glasgow, United Kingdom)
- 9:00 Incremental Scattering and Diffraction
R. Tiberio, A. Toccafondi, S. Maci (Siena, Italy)
- 9:20 The Method of Asymptotic Currents Applied to the Analysis of Mutual Coupling of Antennas Located on or Close to a Perfectly Conducting Convex Surface
F. Molinet, S. Tort (Le Plessis-Robinson, France)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 High-Frequency Asymptotic Green's Function for a Semi-Infinite Array of Dipoles with Arbitrary Excitation
F. Capolino, S. Maci (Siena, Italy); L. B. Felsen (Boston, MA)
- 10:40 A Comparative Study of Incident Field Decompositions in the Geometrical and Physical Theory of Diffraction
O. Breinbjerg, E. Jorgensen (Lyngby, Denmark)
- 11:00 Hybrid Analysis of Large Phased Arrays of Rectangular Open Ended Waveguides
A. Cucini, M. Albani, S. Maci (Siena, Italy); G. Vecchi (Turin, Italy)
- 11:20 High Frequency Scattering by Edges in Penetrable Anisotropic Screens
A. Armogida, G. Manara, A. Monorchio, P. Nepa (Pisa, Italy)
-

Session 6A5 Computational Optics

Wednesday AM, 12 July 2000

Riverfront

Organized by Ch. V. Hafner

Chaired by Ch. V. Hafner and G. Videen

- 8:40 The MMP Near-to-Farfield Transformation
Ch. Hafner (Zurich, Switzerland)

- 9:00 Non-Periodic Grating Couplers in Dielectric Waveguides
E. Moreno (Zurich, Switzerland)

- 9:20 On the Use of the FDTD Algorithm to Calculate the Scattering and Internal Fields of a Sphere Containing a Saturable Absorber
S. C. Hill (Adelphi, MD); W. Sun (Halifax, Canada); G. Videen (Adelphi, MD)

- 10:00 **Coffee Break (Ballroom B)**

- 10:20 Exposure Characteristics of Gratings for Evanescent Near-Field Optical Lithography
S. J. McNab, R. J. Blaikie (Christchurch, New Zealand)

- 10:40 Prediction and Measurement of Light Scatter from Scratch on Surface of Silicon Wafer
N. Orlov, J. Stover, C. Scheer (Charlotte, NC)

- 11:00 Comparison of Gradient Search and Stochastic Search for the Optimization of a Waveguide Filter
Ch. Hafner, P. Harscher (Zurich, Switzerland)
-

Session 6A6

Geometrical and Topological Issues in Three Dimensional Finite Element Analysis

Wednesday AM, 12 July 2000

Ballroom A

Organized by P. R. Kotiuga

Chaired by P. R. Kotiuga and P. W. Gross

- 8:20 Construction of Simplicial Discrete Differential Forms
R. Hiptmair (Tübingen, Germany)
- 8:40 Weitzenbock Identities and Their Uses in Engineering Electromagnetics
P. R. Kotiuga (Boston, MA)
- 9:00 The Hodge Operator, Considered Central in Computational Electromagnetics
A. Bossavit (Clamart, France)
- 9:20 Evaluating Relative Merits of Direct and Semidirect Solvers via Nodal Analysis Factorizations of Finite Element Stiffness Matrices
P. R. Kotiuga (Boston, MA); P. W. Gross (Berkeley, CA)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 Geometrical Approach into Computational Electromagnetism
L. Kettunen, T. Tarhasaari (Tampere, Finland)
- 10:40 On the Systematic Handling of Knotted Geometries in Inductance Calculations
P. R. Kotiuga (Boston, MA)
- 11:00 Optimal Design of Gradient Fields with Application to Electrostatics
R. Lipton, A. Velo (Worcester, MA)
- 11:20 Electromagnetic Theory on Arbitrary Grids from Algebraic Topology and Differential Geometry
E. A. Forgy, W. C. Chew (Urbana, IL)

Session 6A7
Microwave Devices and Circuits

Wednesday AM, 12 July 2000**Skyline I**

Organized by Y.-L. Lai

Chaired by Y.-L. Lai and M.-L. Her

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- 8:20 Potential Broadband Characteristics of a Microwave Transistor and Realisation Conditions
F. Günes, B. S. Yarman (Istanbul, Turkey)
- 8:40 Design and Analysis for a New Low Noise and High Isolation Mixer
M.-L. Her, P.-T. Sun, G.-S. Huang, C.-Y. Yang, F.-S. Kong (Taichung, Taiwan)
- 9:00 A 3.5 GHz Power Amplifier Module Using Directly-Ion-Implanted GaAs MESFET Technology for Wireless Communications
Y.-L. Lai, M.-L. Her, D.-G. Liu, M.-S. Shiao, S.-Y. Yang (Taichung, Taiwan)
- 9:20 Three-Port Power Divider with Frequency Selective Waveguide
R. Ramiz, T. Sengör (Istanbul, Turkey)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Systematic Analysis of CSC Active Inductor with Common-Gate FET Feedback
R.-J. Lee, D.-G. Liu, Y.-L. Lai, M.-S. Shiao, S.-Y. Yang, K.-Y. Liao (Taichung, Taiwan)
- 10:40 Characterisation of the Waveguide Step Discontinuity Devices Based upon the Wiener-Hopf Technique
A. Büyükkösoy (Gebze Kocaeli, Turkey); F. Günes (Istanbul, Turkey); A. S. Türk (Gebze Kocaeli, Turkey); A. Alkumru (Istanbul, Turkey)
- 11:00 Design and Analysis for a New Transceiver Amplifier Module
M.-L. Her, Y.-L. Lai, J.-D. Tseng, S.-X. Guo, C.-Y. Yang (Taichung, Taiwan)
- 11:20 The Characteristics of a Microstrip Line Through Slit Metallic Plane with Connected Capacitors
J.-D. Tseng (Taichung, Taiwan)
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Session 6A8
Radio Waves in Troposphere and Ionosphere

Wednesday AM, 12 July 2000**Skyline II**

Chaired by Y. A. Liou

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- 8:40 Influence of Refractivity Profiles for RF and EO Applications within the Marine Surface Boundary Layer
J. Claverie (Guer, France)
- 9:00 Prediction of Differential Rain Attenuation Induced on a Fixed Satellite System by Two Adjacent Interfering Satellites
J. D. Kanellopoulos, A. D. Panagopoulos (Athens, Greece)
- 9:20 Ice Crystal and Raindrop Canting Angle Effects on a Dual Polarized Satellite System Suffering from Cross Polarization and Differential Rain Attenuation (Gamma Case)
J. D. Kanellopoulos, A. D. Panagopoulos (Athens, Greece)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Precipitable Water Dynamics of Severe Weather Systems Observed by GPS in Taiwan
Y. A. Liou, C.-Y. Huang (Chungli, Taiwan)
- 10:40 On the Measurement of Amplitude Scintillations on Earth Satellite via Thaicom
O. Saingaroon, J. Griwan, P. Tangtisanon, K. Janchitrapongvej (Bangkok, Thailand); Y. Moriya (Japan)
- 11:00 Frequency Spectra of Clear-Sky and Wet Amplitude Scintillation on Earth Satellite Via Thaicom
O. Saingaroon, J. Nakasawan, C. Benjangkaprasert, K. Janchitrapongvej, (Bangkok, Thailand); Y. Moriya (Japan)
- 11:20 Use of Dual-Polarization Radars for Studying the Meteorological Objects and Detection of Dangerous Meteorological Phenomena
A. B. Shupiatsky (Moscow Region, Russia)
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Session 6P1
Rough Surface Scattering

Wednesday PM, 12 July 2000**Parkview**

Chaired by A. A. Maradudin and M. El-Shenawee

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- 13:00 Scattering of HF Signals Radiated from Ships Moving in Rough Seas
S. J. Anderson, J. Praschifka (Salisbury, Australia)
- 13:20 A Modified Tapered Wave for the Simulation of Rough Surface Scattering
H. Braunisch, Y. Zhang, C. O. Ao, S.-E. Shih, Y.-C. E. Yang, K.-H. Ding, J. A. Kong (Cambridge, MA); L. Tsang (Seattle, WA)
- 13:40 Calculation of the Mueller Matrix for Scattering of Electromagnetic Waves from Three-Dimensional Canonical Rough Surfaces
B. Chevalier, G. Berginc (Guyancourt, France)
- 14:00 Characteristics of Near-Grazing Angle Scattering from the Ocean Surface
D. Kasilingam (North Dartmouth, MA)
- 14:20 Polarimetric Bistatic Scattering Omnidirectionally from Random Rough Surfaces
C.-Y. Hsieh (Kaohsiung, Taiwan)
- 14:40 Bistatic Scattering from Randomly Very Rough Surfaces
C.-Y. Hsieh (Kaohsiung, Taiwan)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 An Extension of the IEM/IEMM Surface Scattering Model
J. L. Álvarez-Pérez (Nottingham, United Kingdom)
- 15:40 Analytical and Numerical Investigation of Rayleigh Hypothesis for Gratings
M. I. Charnotskii (Boulder, CO)
- 16:00 Scattering, Transmission, and Absorption in a Rough Resistive Sheet
E. Jacobs (Ft. Belvoir, VA); R. H. Lang (Washington, DC)
- 16:20 The Modified Bragg Scattering Theory for the Small and Middle Incidence Angles
V. Yu. Karaev (Nizhny Novgorod, Russia)
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- 16:40 Simulation of the Electromagnetic Wave Interaction with Large Objects Above a Rough Surface via Shooting and Bouncing Rays Technique
S. H. Park, C. O. Ao, H. Braunisch, F. L. Teixeira, J. A. Kong (Cambridge, MA)

Session 6P2
TRMM: Algorithm Analysis and Application

Wednesday PM, 12 July 2000

Charles B

Organized by L. S. Chiu
 Chaired by L. S. Chiu and W. L. Teng

- 13:00 NASA GSFC Distributed Active Archive Center's Value-Added Support for TRMM Science and Applications
W. Teng, L. Chiu, G. Serafino, J. Bonk, H. Rui, P. Hrubiak, R. Yang, N. Pollack, G. Vicente, Z. Liu (Greenbelt, MD)
- 13:20 Estimation of Rain Attenuation from TRMM Precipitation Radar Mirror Image Return
L. Liao, R. Meneghini (Greenbelt, MD)
- 13:40 A New Approach to Determining the Information Content of Measurements: Application to the TRMM Observing System
T. S. L'Ecuyer, G. L. Stephens (Fort Collins, CO)
- 14:00 Rainfall Retrieval from Different Combinations of Passive-Microwave Channels
D. Coppens (Palaiseau, France); Z. Haddad (Pasadena, CA); M. Desbois (Palaiseau, France)
- 14:20 Application of Statistical Methods of Rain Rate Estimation to Data from the TRMM Precipitation Radar
R. Meneghini (Greenbelt, MD); J. A. Jones (Lanham, MD); T. Iguchi, K. Okamoto (Tokyo, Japan); L. Liao (Greenbelt, MD)
- 14:40 Evaluation of Tropical Rainfall Estimates Derived Using TRMM and GOES Satellite Data
X. Gao, K.-L. Hsu, S. Sorooshian, H. V. Gupta (Tucson, AZ)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Non-Systematic Error Estimates for Oceanic Monthly Mean Rain Rate Derived from TMI
L. S. Chiu (Fairfax, VA); A. T.-C. Chang (Greenbelt, MD)
- 15:40 Remote Sensing Soil Moisture Using Four Dimensional Data Assimilation of TRMM Microwave Observations
J. Entin, P. Houser, B. Choudhury, J. Wang (Greenbelt, MD)
- 16:00 Overcast Clouds Determined by TRMM Measurements
B. Lin, P. Minnis, B. Wielicki (Hampton, VA)
- 16:20 Development of the TRMM Fire Product Algorithm
Y. Ji (Fairfax, VA); E. Stocker (Greenbelt, MD)
- 16:40 Diurnal Cycle of Oceanic Precipitation: Studies Based on SSM/I and TRMM Microwave Imager (TMI) Data
Y. Xing, Y. Vikhyaev (Fairfax, VA); L. S. Chiu, A. T.-C. Chang (Greenbelt, MD)
- 17:00 Case Study of China Heavy Rain in 1998 Using TRMM Data
M. Cheng, F. Zhou (Beijing, China)
- 17:20 Comparison between TRMM PR and Ground Based Radar
Y.-S. Jung, W.-T. Kwon, J.-C. Nam (Seoul, Korea)

- 17:40 Validating PR and GV Data from the TRMM Coincident Subset Using Image Registration Technique
J. Vongsaard (Fairfax, VA); L. S. Chiu (Greenbelt, MD); T. El-Ghazawi, P. Chalermwat (Fairfax, VA)

Session 6P3
Synthesis of Antenna Arrays

Wednesday PM, 12 July 2000

Charles A

Organized by F. J. Ares-Pena
 Chaired by F. J. Ares-Pena

- 13:00 Optimal Focusing of Scalar Fields Subject to Arbitrary Upper Bounds
O. M. Bucci, L. Caccavale, T. Isernia (Napoli, Italy)
- 13:20 Power Pattern Synthesis of Given Hull-Sources Exploiting Array Methods
O. M. Bucci, L. Caccavale, T. Isernia (Napoli, Italy)
- 13:40 Reconfigurable Conformal Array Synthesis with Near-Field Constraints
O. M. Bucci, A. Capozzoli, G. D'Elia (Napoli, Italy)
- 14:00 Local Search Techniques Applied to Linear Array Synthesis Problems with Strict Sidelobe or Ripple Levels in the Shaped Region
M. J. Buckley (Cherry Hill, NJ); W. S. Nelson (Glen Burnie, MD)
- 14:20 Pattern Synthesis at Georgia Tech
M. A. Ingram (Atlanta, GA)
- 14:40 Generalized Analytical Technique for the Synthesis of Unequally Spaced Arrays
B. P. Kumar, G. R. Branner (Davis, CA)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Synthesis of On-Board Array Antennas
F. Obelleiro (Vigo, Spain); L. Landesa (Cáceres, Spain); J. M. Taboada, J. L. Rodríguez (Vigo, Spain)
- 15:40 Antenna Array Pattern Synthesis Including Mutual Coupling
J. A. Rodríguez, F. Ares, E. Moreno (Santiago de Compostela, Spain); G. Franceschetti (Napoli, Italy)
- 16:00 Antenna Pattern Synthesis Using the Tseng Window
T. K. Sarkar (Syracuse, NY)
- 16:20 Phase Synthesis of Conformal Array Antennas by Using Approximative Linear Equations and Least-Squares Optimization Method
L. Vaskelainen (Espoo, Finland)
- 16:40 Pattern Nulling and Simultaneous Reduction of Dynamic Range Ratio for Antenna Arrays
R. Vescovo (Trieste, Italy)

Session 6P4
Six-Port Reflectometers

Wednesday PM, 12 July 2000

Somerset

Organized by S. P. Yeo
 Chaired by A. L. Cullen and R. G. Bosisio

- 13:00 A Switched State Six Port Reflectometer
S. R. Judah (Hull, United Kingdom)

- 13:20 A Matched Quasioptical 5 Port Using Only Wire Grids
G. P. Riblet (Needham Heights, MA)
- 13:40 A Broadband Quasioptical 6-Port Network Using a Single Wire Grid and a Quarter Waveplate
G. P. Riblet (Needham Heights, MA)
- 14:00 A Simplified Configuration of Six-Port Reflectometer Based on Symmetrical Five-Port Junction
G.-W. Chen, Z. Zhang, K. Lee, M. Chen (Shandong, China)
- 14:20 Six-Port Reflectometer Based on Four-Port Couplers
S. P. Yeo, S. G. Eng (Singapore)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 A New Six-Port Based Waveform Measurement Technique with Application to Microwave Transistor Characterization
P. Poiré (Nanterre, France); F. M. Ghannouchi (Montreal, Canada); G. Brassard (Saint-Hubert, Canada)
- 15:40 A New Approach to Calibrate the Six-Port Direct Digital Millimetric Receivers (DDMR)
T. Visan (Montreal, Canada); J. Beauvais (Sherbrooke, Canada); R. G. Bosisio (Montreal, Canada)
- 16:00 Application of Six-Port Technique in a Radar System
B. A. Garcia, C. G. Miguelez, B. Huyart, L. Jallet (Paris, France)
- 16:20 High Accuracy Phase Measurement for Radar Applications Using Six-Port Technology
C. G. Diskus, A. Stelzer (Linz, Austria)

Session 6P5 Scalable Solid State Quantum Computing

Wednesday PM, 12 July 2000

Riverfront

Organized by J. P. Dowling

Chaired by J. P. Dowling and C. P. Williams

- 13:00 Silicon-Based Quantum Computation
B. E. Kane (College Park, MD)
- 13:40 Quantum Computing with Nuclear Spins in Semiconductor Structures
V. Privman (Potsdam, NY)
- 14:00 Electron Spin Resonance Transistors for Quantum Computing in Silicon-Germanium Hetero-Structures
R. B. Vrijen, E. Yablonovitch, K. Wang, H. W. Jiang, A. Balandin, V. Roychowdhury, T. Mor (Los Angeles, CA); D. DiVincenzo (Yorktown Heights, NY)
- 14:20 Crystal Lattice Quantum Computer
F. Yamaguchi, Y. Yamamoto (Stanford, CA)
- 14:40 Probing the Coherence of Single Cooper-Pair Qubits with Fast Electrometry
R. J. Schoelkopf, K. Lehnert (New Haven, CT); P. Delsing (Göteborg, Sweden)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Implementing an Arbitrary One-Qubit Gate with the Single Cooper Pair Box Approach: Specific Calculations
P. M. Echternach, C. P. Williams (Pasadena, CA)
- 15:40 Quantum Computing and Quantum Measurements with Mesoscopic Josephson Junctions
D. V. Averin (Stony Brook, NY)

- 16:00 Composite Flux/Charge Qubit
K. K. Likharev (Stony Brook, NY)
- 16:20 Control Electronics for Solid-State Quantum Computing
M. J. Feldman, M. F. Bocko (Rochester, NY)
- 16:40 Solid State Coherent Qubit Systems by Quantum Resonance
H. Matsueda (Kochi, Japan)
- 17:00 Quantum Neural Networks for Quantum Computations
M. Tabib-Azar, B. Igelnik, Y.-H. Pao (Cleveland, OH); S. LeClair (Wright-Patterson AFB, OH)

Session 6P6 Electromagnetic Observations before Upcoming Earthquakes and Disasters

Wednesday PM, 12 July 2000

Ballroom A

Organized by T. Sengör

Chaired by T. Sengör, S. Uyeda, and P. F. Denisenko

Part I: Observational Facts

- 13:00 Alfvén Wave Magnetic Perturbations on the Earth Excited by Seismic Wave
S. V. Koshevaya, G. N. Burlak, J. S. Mondragon, V. V. Grimalsky, A. N. Kotsarenko (Cuernavaca, Mexico)
- 13:20 Statistical Bond between the Earthquakes with M>4 at the Kazakhstan Forecast Polygon and Ionospheric Processes
T. E. Chshyolkova, V. M. Krasnov (Almaty, Kazakhstan)
- 13:40 Co-Seismic Geoelectric Potential Changes Observed in Japan
T. Nagao, Y. Orihara, T. Yamaguchi, I. Takahashi, K. Hattori, Y. Noda, S. Uyeda (Shimizu, Japan)
- 14:00 Subsolar Magnetopause Position as an Informative Index for Diagnosis of Some Natural Disasters
A. V. Shirochkov and L. N. Makarova (St. Petersburg, Russia)
- 14:20 Electromagnetic Observations before Upcoming Disasters. Observation Facts and Analytical Models for Fact Extractions
S. I. Klimov, A. A. Petrukovich, O. A. Pokhotelov (Moscow, Russia)
- 14:40 Geoelectric Potential Changes: Possible Precursors to Earthquakes
T. Nagao, Y. Orihara, T. Yamaguchi, I. Takahashi, S. Uyeda (Shimizu, Japan)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Abnormal Variations of Amplitude of a VLF-Signal and Forecast of Possible Time Intervals Between the Beginning of Preparation and Moment of the Earthquake
N. A. Kazakova, A. G. Kolesnik, B. M. Shinkevich (Tomsk, Russia)
- 15:40 ULF Magnetic Field Anomalies Preceding Earthquakes Observed in Japan
K. Hattori (Shimizu, Japan); Y. Akinaga, M. Hayakawa (Chofu, Japan); K. Yumato (Fukuoka, Japan); T. Nagao, S. Uyeda (Shimizu, Japan)
- 16:00 The Long Time Exact Predicting Electromagnetic Signals of Earthquakes
T. Sengör (Istanbul, Turkey)

Part II: Analytical Models for Fact Extraction

- 16:20 Remote Sensing of Short-Term Ionospheric Precursors of Earthquake by Use of Radiophysical Methods
N. Blaunstein (Beer-Sheva, Israel)
- 16:40 Physical Mechanism of Ionospheric Electromagnetic ULF/ELF and Optical Noises Induced by Natural and Artificial Sources
G. Aburjania (Tbilisi, Georgia)
- 17:00 New Method for Ionospheric Turbidity Estimation
P. F. Denisenko, G. I. Kuleshov, A. I. Scazik (Rostov-on-Don, Russia)
- 17:20 The Electromagnetic Extraction of a New and Exact Model for Earthquake Mechanism
T. Sengör (Istanbul, Turkey)

Session 6P7
RF, Microwave, and Millimeter-wave Devices I

Wednesday PM, 12 July 2000

Skyline

Chaired by O. Franza and F. L. Teixeira

- 13:00 Fabrication of NRD Guide BPSK Modulator at 60 GHz
J. Baba, C. Kume (Fukuoka, Japan); F. Kuroki (Hiroshima, Japan); T. Yoneyama (Sendai, Japan)
- 13:20 Determination of Intermodulation Products in Multi-Carrier Amplifiers
W.-L. Chan, W. S. Chan, R. C. W. Li (Hong Kong)
- 13:40 NRD Guide Front Ends for Multi-Channel TV Signal Distribution System at 60 GHz
F. Kuroki, M. Sugioka (Hiroshima, Japan); E. Suematsu, H. Sato (Ichinomoto Tenri, Japan); T. Yoneyama (Sendai, Japan)
- 14:00 Novel Quasioptical Interaction Structure for a Millimeter Wave Amplifier
J. R. Sirigiri, M. A. Shapiro, K. E. Kreischer, R. J. Temkin (Cambridge, MA)
- 14:20 Improved LNA Dynamic Range Using Post-Distortion Linearisation
S. C. Wong, W. S. Chan, T. Y. M. Siu (Hong Kong)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Power Amplifier/Low Noise Amplifier as a TX/RX Switch
S. C. Wong, W. S. Chan, T. Y. M. Siu (Hong Kong)
- 15:40 A Novel MMIC 3 Phase-State Switched-Filter Phase Shifter
J. Yao, M. K. Haldar, P. S. Kooi (Singapore)
- 16:00 Two Amplifier Combined Active Integrated Linearly Polarised Antenna
C. C. Yang, W. S. Chan, W. L. Chan (Hong Kong)
- 16:20 Broadband Power Divider Using Active Inductor
Y. Wang, B. L. Ooi, M. S. Leong (Singapore)
- 16:40 Quasi-Multiplying Low 3rd Order IMD Amplifier
C. S. Yu, W. S. Chan, W. L. Chan (Hong Kong)

Session 7A1
New Information Retrieval Methods and Sensor Technologies for Microwave Remote Sensing

Thursday AM, 13 July 2000

Parkview

Organized by J. Wu
Chaired by J. Wu and C. Wang

- 10:20 Improvement of Precipitable Water Retrievals from the SSM/I Measurements Over Oceans by Using a SOM Neural Network
H. Chen, J. Bian, P. Yang, D. Lu (Beijing, China)
- 10:40 A Combined Soil Moisture Retrieval Method by Microwave Remote Sensing
J. Wu (Beijing, China); A. K. Fung (Arlington, TX); B. Sun, S. Zhu (Beijing, China)
- 11:00 Along Track Aperture Synthesis for Spaceborne Microwave Radiometer
J. Wu, Y. Huang, X. Dong (Beijing, China)
- 11:20 A Study on Distinguishing Sea States from Sea Surface Inverse Scattering Bragg-Doppler Spectrum
J. Liu, J. Cheng, R. Yin, Z. Zheng, J. Yin (Shanghai, China)
- 11:40 Crops Microwave Emission Model and Data Validation
G. Pan, C. Wang (Beijing, China)

Session 7A2
Superconducting Devices for Communication and Sensor Applications

Thursday AM, 13 July 2000

Charles B

Organized by H. J. Chaloupka
Chaired by H. J. Chaloupka and R. R. Mansour

- 8:20 HTS Technology for Analog Signal Processing
W. G. Lyons, A. C. Anderson, D. E. Oates (Lexington, MA)
- 8:40 High-Temperature-Superconductor Applications in Terrestrial Mobile Communication
H. J. Chaloupka (Wuppertal, Germany)
- 9:00 Superconductive Photon Detectors and Their Applications
R. Cristiano (Napoli, Italy)
- 9:20 SQUID Sensors
M. Mück (Berkeley, CA)
- 9:40 Quantitative Imaging with the Near-Field Scanning Microwave Microscope
S. M. Anlage, C. P. Vlahacos, S. K. Dutta, D. E. Steinhauer, W. Hu, A. Thanawalla, B. J. Feenstra, F. C. Wellstood (College Park, MD)

Session 7A3
Antenna Arrays

Thursday AM, 13 July 2000

Charles A

Chaired by C. Seo and C. Rappaport

- 8:00 Analysis of L/X-Band Phased Array Fed Cylindrical Reflector with Super-Quadric Projected Aperture for Cold Regions/Soil Moisture Mission
Z. A. Hussein, J. Hilland, J. Vanzyl (Pasadena, CA)

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| <p>8:20 New Formulation for Coupling Matrix in Dipole Arrays
<i>C. Guiffaut, K. Mahdjoubi (Rennes, France)</i></p> <p>8:40 Design of a Broadband Slot-Fed Patch Antenna Array
<i>C. Laumond, Ph. Dufrane, F. Lamour, M. Elkael (Limoges, France)</i></p> <p>9:00 New Beam Tracking Technique by Coupled Mixer and Voltage Controlled Oscillator
<i>C. Seo, T. Choi (Seoul, Korea)</i></p> <p>9:20 Effect of Dielectric Flanges on V-Slot Array Antennas (ASAA)
<i>B. S. Makal, P. V. Hunagund, S. F. Farida, R. M. Vani, S. N. Mulgi (Gulbarga, India)</i></p> <p>9:40 H8 Algorithms for Adaptive Antenna Array
<i>Y.-H. Chen, A.-C. Chang (Kaohsiung, Taiwan)</i></p> <p>10:00 Coffee Break (Ballroom B)</p> <p>10:20 30 GHz Steerable Beam Antenna Based on Ferroelectric Phase-Shifters
<i>A. B. Kozyrev, V. N. Oshadchy, A. S. Pavlov, A. Golovkov, M. Sugak, D. Kalinikos (St. Petersburg, Russia); C. M. Carlson, T. V. Rivkin, P. A. Parilla, J. D. Perkins, D. S. Ginley (Golden, CO); L. C. Sengupta, L. Chiu, X. Zhang, Y. Zhu, S. Sengupta (Columbia, MD)</i></p> <p>10:40 Direction Finding Using Recursive MVDR Beamformer
<i>M.-S. Chen, C.-H. Hsieh, R.-J. Liou (Chang-Hwa, Taiwan)</i></p> <p>11:00 Antenna Array on a Multilayer Dielectric
<i>M. Wnuk, W. Kolasowski, R. Dufrene, E. Sedek (Warsaw, Poland)</i></p> <p>11:20 Two Easy-to-Implement Partially Adaptive Antenna Array Techniques
<i>M. Aboul-Dahab, M. M. M. Y. Omar (Alexandria, Egypt)</i></p> <p>11:40 Design and Realization of Ku Band, Active Phased Array Microstrip Patch Antenna
<i>H. B. Yagci, S. Paker, O. Palamutcuoglu (Maslak-Istanbul, Turkey)</i></p> | <p>9:40 Characterising Different Types of Flattened-Gaussian Beams Using M2, K, and L
<i>S. Saghaei, G. W. Forbes (Sydney, Australia)</i></p> <p>10:00 Coffee Break (Ballroom B)</p> <p>10:20 Double Refraction of a Gaussian Beam into a Uniaxial Crystal
<i>V. Dhayalan, S. S. Glen, J. J. Stamnes (Bergen, Norway)</i></p> <p>10:40 Double Refraction of a Gaussian Beam into a Biaxial Crystals
<i>S. S. Glen, V. Dhayalan, J. J. Stamnes (Bergen, Norway)</i></p> <p>11:00 Stability of Dark Solitons in Media with Arbitrary Nonlinearity
<i>Y. Chen (Canberra, Australia)</i></p> <p>11:20 Flattened Gaussian Beams as a Tool for Characterising Unstable Resonator Lasers
<i>S. Saghaei, J. A. Piper (Sydney, Australia)</i></p> <p>11:40 Electromagnetic Theory of an Open Resonator
<i>S. R. Seshadri (Madison, WI)</i></p> |
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Session 7A5

Quantum Information Processing by NMR

Thursday AM, 13 July 2000

Riverfront

Organized by D. G. Cory

Chaired by D. G. Cory and R. Laflamme

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| <p>8:40 From Quantum Networks to Pulse Sequences
<i>E. Knill, R. Laflamme (Los Alamos, NM)</i></p> <p>9:00 Experimental Study of Quantum Error Correction Using Induced Decoherence
<i>Y. Sharf (Cambridge, MA); T. F. Havel (Boston, MA); E. Knill, R. Laflamme (Los Alamos, NM); D. G. Cory (Cambridge, MA)</i></p> <p>9:20 Quantum Simulation with Natural Decoherence
<i>C. H. Tseng, S. Somaroo, Y. Sharf (Cambridge, MA); E. Knill, R. Laflamme (Los Alamos, NM); T. F. Havel (Boston, MA); D. G. Cory (Cambridge, MA)</i></p> <p>10:00 Coffee Break (Ballroom B)</p> <p>10:20 The Effect of Correlations on a Quantum Error Correcting Code
<i>T. F. Havel, Y. Sharf, S. S. Somaroo, D. G. Cory (Cambridge, MA)</i></p> <p>10:40 Noiseless Subsystems for Quantum Noise Control
<i>L. Viola (Cambridge, MA)</i></p> <p>11:00 On the Scalability of NMR Quantum Computation
<i>N. Gershenfeld, Y. Maguire, J. Taylor (Cambridge, MA)</i></p> |
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Session 7A6

EM Scattering and Diffraction I

Thursday AM, 13 July 2000

Ballroom A

Chaired by R. Lang and H. Ikuno

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| Session 7A4
Free and Guided Optical Beams I | |
| <i>Thursday AM, 13 July 2000</i>
<i>Somerset</i>
Organized by S. R. Seshadri
Chaired by M. Hashimoto and S. R. Seshadri | |
| <p>8:00 Pulsed Beam Fields: Complex Spectrum Considerations Beyond the Paraxial Regime
<i>E. Heyman (Tel-Aviv, Israel); L. B. Felsen (Boston, MA)</i></p> <p>8:20 Asymptotic Description of Pulsed Ultrawideband Electromagnetic Beam Field Propagation in Complex Dispersive Media
<i>K. E. Oughstun (Burlington, VT)</i></p> <p>8:40 How Far Can Rays Take Us?
<i>G. W. Forbes, M. A. Alonso (Sydney, Australia)</i></p> <p>9:00 Geometrical Optics for Stationary Waves in Guided Wave Structures
<i>M. Hashimoto (Osaka, Japan)</i></p> <p>9:20 Quasi-Diffraction-Free Beam
<i>K. Tanaka, Y. Mori, S. Teramoto, M. Taguchi, T. Tanaka (Nagasaki, Japan)</i></p> | |
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- 9:00 Analysis of Plane Wave Diffraction by a Semi-Infinite Grating
M. Nishimoto, H. Ikuno (Kumamoto, Japan)
- 9:20 Thick Screens Perforated with a Periodic Array of Apertures with Arbitrary Cross-Section
B. Widenberg, S. Poulsen, A. Karlsson (Lund, Sweden)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 Numerical Analysis of Two Parallel Plate Waveguide
S. L. Tan, B. L. Ooi, M. S. Leong (Singapore)
- 10:40 Scattering by a Vertical Dielectric Cylinder over a Flat Ground
P. de Mattheis, R. H. Lang (Washington, DC)
- 11:00 Electrodynamics Systems Based on the Dominating Wood's Anomalis in Diffractive Electronics
V. A. Komagorkin, A. F. Korolev (Moscow, Russia)

Session 7A7
Scattering from Microstructures

Thursday AM, 13 July 2000

Skyline

Organized by G. Videen and F. Gonzalez
Chaired by G. Videen and F. Gonzalez

- 8:40 Fluctuations in Radiation Scattered by Small Spheroids Above an Interface
E. Jakeman (Nottingham, United Kingdom); D. L. Jordan, G. D. Lewis (Malvern, United Kingdom)
- 9:00 Surface Microstructure Characterization of Semiconductor Layers by Ex-Situ and In-Situ Polarized Laser Light Scattering
J. A. Sánchez-Gil, M. U. González, Y. González, L. González (Madrid, Spain); E. Méndez (Baja California, Mexico)
- 9:20 Measuring Size Polydispersity from the Copolarized Light Scattering Patterns
J. L. de la Peña, F. González, J. M. Saiz, F. Moreno, P. J. Valle (Santander, Spain); G. Videen (Adelphi, MD)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 First-Order Vector Perturbation Theory: What are Its Limits?
T. A. Germer (Gaithersburg, MD)
- 10:40 Polarized Scattered Light as a Probe for Surface Structure and Change
W. S. Bickel, V. Iafelice (Tucson, AZ)
- 11:00 Polarization Changes Produced by Diffractive Optical Microstructures
R. Borghi, F. Frezza, M. Santarsiero, G. Schettini (Rome, Italy)

Session 7P1
Waves in Random Media

Thursday PM, 13 July 2000

Parkview

Chaired by G. F. Crosta and G. Whitman

- 13:00 Radar Remote Sensing of an Object Hidden by a Forest at Low Frequencies: A 2-D Full Wave Approach
D. de Badereau, H. Roussel, W. Tabbara (Gif-sur-Yvette, France)

- 13:20 Calculating Effective Permittivity of Wet Snow by Strong Fluctuation Theory
A. N. Arslan (Nokia Group, Finland); H. Wang (Tampere, Finland); J. Pulliainen, M. Hallikainen (Espoo, Finland)
- 13:40 Pulse Beam-Wave Propagation and Scattering in Random Media Based on Radiative Transfer Theory
G. Whitman (Newark, NJ); F. Schwering (Fort Monmouth, NJ); S-K. Hu (Newark, NJ)
- 14:00 Modeling of Wet Snow Brightness Temperature by Using Radiative Transfer and Strong Fluctuation Theory
H. Wang (Tampere, Finland); A. N. Arslan (Nokia Group, Finland); J. Pulliainen, M. Hallikainen (Hut, Finland)
- 14:20 Numerical Analysis of Scattering Cross Section of a Simple Moist Soil Model by Using a Radiative Transfer Equation
T. Matsuoka, M. Tateiba (Fukuoka, Japan)
- 14:40 A Multilayer Scattering Model for a Dense Vegetation Medium
H. T. Ewe, H. T. Chuah (Selangor, Malaysia)

15:00 **Coffee Break (Ballroom B)**

- 15:20 Dense Medium Model of Polarimetric Thermal Emission from Sea Foam
C. O. Ao, P. O. Orondo, Y. Zhang, J. A. Kong (Cambridge, MA)
- 15:40 Electromagnetic Characterization of Dense Distributions of Spheroidal Particles in Random Media
B. E. Barrowes, C. O. Ao, F. L. Teixeira, L. Tsang, J. A. Kong (Cambridge, MA)
- 16:00 Electromagnetic Wave Scattering by a Layer of Randomly, Uniformly Distributed Scatterers and its Analogy with the Scattering of an Electron in an Impure Metal
J. L. Alvarez-Pérez (Nottingham, United Kingdom)
- 16:20 Dielectric Properties of Heterogeneous Random Media Embedded with Discrete Scatterers
N. M. Nedeltchev (Sofia, Bulgaria); J. C. Peuch, H. Baudrand (Toulouse, France)
- 16:40 Radiative Transfer Theory with Delay for Light Pulse Entrapping by Multiple Resonant Scattering on Volume and Surface Modes in Small Particles
Yu. N. Barabanenkov, M. Yu. Barabanenkov (Moscow, Russia); D. P. Winebrenner (Seattle, WA)
- 17:00 Rigorous Problem of Radiation and Scattering in Random Layered Media
M. A. Guzey, G. V. Popov (Vladivostok, Russia)

Session 7P2
Resonances in Composite Media and Their Effects on Electromagnetic Response

Thursday PM, 13 July 2000

Charles B

Organized by D. J. Bergman
Chaired by D. J. Bergman and T. Thio

- 13:00 Electrostatic Resonances in Polycrystalline Materials
D. G. Stroud (Columbus, OH)

- 13:20 High-Frequency Field Distribution and Anderson Localization in Random Metal-Dielectric Films
A. N. Lagarkov, K. N. Rozanov, A. K. Sarychev, N. A. Simonov (Moscow, Russia); V. A. Shubin, V. M. Shalaev (Las Cruces, NM)
- 13:40 Giant Light Transmission Through Subwavelength Apertures in Metal Films
T. Thio (Princeton, NJ)
- 14:00 Magnetic Field Control of Optical Transmission Through Conducting Films with a Sub-Wavelength Hole Array
Y. M. Strelnioker, D. J. Bergman (Tel-Aviv, Israel)
- 14:20 Surface-Plasmon-Enhanced Optical Phonons
M. Gadenne (Paris, France); V. M. Shalaev (Las Cruces, NM)
- 14:40 Near-Field Microwave Microscope with Micron (and Sub Micron) Resolution for Imaging of Conducting, Superconducting and Dielectric Films
D. Davidov, M. Golosovsky, A. Frenkel (Jerusalem, Israel)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Resonances in Composite Media: Indicators for Interface Properties
G. Bour, M. Gartz, A. Hilger, U. Kreibig, M. Tenfelde (Aachen, Germany)
- 15:40 Observation and Applications of Locally Enhanced Electromagnetic Field
P. Gadenne, X. Quélin, S. Buil (Versailles, France); S. Ducourtieux, J.-C. Rivoal (Paris, France); V. Shalaev (Las Cruces, NM)
- 16:00 Local Field Calculation in 3D Scattering Media Near Resonances
D. B. Stout, C. Andraud, A. Da Silva, J. Lafait (Paris, France)
- 16:20 Giant Influence of Evanescent Electromagnetic Waves and Fields on Spatial Inhomogeneity of Field Absorption and Electron Emission
A. M. Dykhne, I. M. Kaganova (Moscow, Russia)
- 16:40 Chaos of Excitations, Giant Fluctuations, and Nonlinear Optical Enhancement in Large Clusters and Nanocomposites
M. I. Stockman (Atlanta, GA)
- 17:00 Dimensional Crossover in the Effective Response in Random Resistor Networks
P. M. Hui (Hong Kong)
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- Session 7P3**
Antenna Technology II
- Thursday PM, 13 July 2000**
Charles A
Chaired by S. Mano and Y. Hara
-
- 13:00 Compensation of Truncation Error in Near-Field Antenna Measurement of Long Antennas
J. Ch. Bolomey (Gif-sur-Yvette, France); O. M. Bucci, L. Casavola, G. D'Elia, M. D. Migliore (Napoli, Italy); A. Ziyyat (Gif-sur-Yvette, France)
- 13:20 A Backfire Antenna Fed by a Backfire Mode Zigzag
J. Hao, G. W. Hanson (Milwaukee, WI)
- 13:40 Blockage Cancellation in an Array-Fed Reflector Antenna
S. Mano, T. Tsutsumi, T. Katagi (Kamakura, Japan)
- 14:00 Candle Antenna in Ka-Band
A. Lecompte (Cannes La Bocca, France); B. Pinte (Toulouse, France)
- 14:20 Characteristics of Handheld Terminal a Modified Folded Dipole Antenna for Mobile Communication
H. Kawakami, Y. Itsuka, Y. Ojiro, S. Koshikawa, S. Kogiso, G. Sato (Omiya, Japan)
- 14:40 A Novel Circularly Polarized Slender Antenna
J. C. Lee (Lexington, MA)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 A Novel Approach to the Short Dipole Impedance Evaluation and the Various Implications
U. Suissa, L. Frumkis, B. Z. Kaplan (Beer-Sheva, Israel)
- 15:40 Novel Compact Multiband Case-Mounted Antenna for Portable Wireless Communications Devices
F. Vasilyeva, A. Taflove (Evanston, IL)
- 16:00 Applications of Adaptative Antennas in Wideband CDMA Cellular Systems
D. Zheng, A. Kogiantis, M. Zuniga (Arlington, VA)
- 16:20 Numerical-Analytical Method for Analyzing Dipole and Slot Antennas
V. L. Danilchuk (Novgorod, Russia)
- 16:40 The Design and the Construction of a Video Signal Transmission System between a Helicopter and a Central Building by Using UHF Band
M. Can, A. H. Serbest (Adana, Turkey)
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Session 7P4
Novel Mathematical Methods in Electromagnetics I

Thursday PM, 13 July 2000

Somerset

Organized by Yu. V. Shestopalov and K. Kobayashi
Chaired by K. Kobayashi and Yu. V. Shestopalov

- 13:00 Asymptotic Theory of X-Ray Propagation in Nano-Meter Waveguide Using Spectral Function
Y. Miyazaki (Toyohashi, Japan)
- 13:20 Analytical-to-Numerical Approach to Calculation of Eigenoscillations and Eigenwaves in Complex-Shaped Slotted Structures
Yu. V. Shestopalov (Moscow, Russia)
- 13:40 Dielectric Cylinder of Arbitrary Shape: Analytical Regularization of Wave Diffraction Problem
Yu. A. Tuchkin, N. P. Yashina (Kharkov, Ukraine)
- 14:00 Bicomplex Waves in Electromagnetic Boundary-Value Problems
M. Hashimoto (Osaka, Japan)
- 14:20 Scattering and Diffraction of a TM Plane Wave from a Randomly Rough Half-Plane
Y. Tamura, J. Nakayama (Kyoto, Japan)
- 15:00 Coffee Break (Ballroom B)**
- 15:20 Exact, Uniform Asymptotic, and Numerical Constructions of Helmholtz Operator Symbols
L. Fishman (Stennis Space Center, MS)

- 15:40 Electrodynamics and Electrostatics in Heterogeneous Media. Effective Properties and Their Assessments
V. S. Travkin, I. Catton (Los Angeles, CA); A. T. Ponomarenko (Moscow, Russia); S. A. Gridnev, Yu. E. Kalinin, B. M. Darinskiy (Voronezh, Russia)
- 16:00 Ferromagnetism in Scaled Hierarchical Materials. Wave Absorption on Micro- and Macroscale
V. S. Travkin, I. Catton (Los Angeles, CA); A. T. Ponomarenko (Moscow, Russia); S. A. Gridnev, Yu. E. Kalinin, B. M. Darinskiy (Voronezh, Russia)
- 16:20 Optimal Material Design in the Problem of Control of the Waveguide Fields
K. A. Lurie, V. V. Yakovlev (Worcester, MA)
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Session 7P5
SAR Information Processing and Environment Applications

Thursday PM, 13 July 2000
Riverfront

Organized by J. S. Lee and J. C. Souyris
Chaired by J. S. Lee and J. C. Souyris

- 13:00 On the Polarization Orientation Angle Estimation from Polarimetric SAR Data
J. S. Lee, D. L. Schuler, T. L. Ainsworth (Washington, DC)
- 13:20 Compensation of Terrain Slope Effects Using Multi-Pass Polarimetric SAR Data
D. L. Schuler, J. S. Lee, T. L. Ainsworth (Washington, DC)
- 13:40 Polarimetric SAR Data Analysis and Modeling of Ocean Surface Features
T. L. Ainsworth, J. S. Lee, D. L. Schuler (Washington, DC)
- 14:00 Effects of Subsurface Condition on Radar Signals from Snow Covered Terrain at L-Band
J. Shi (Santa Barbara, CA); K. S. Chen (Chung-Li, Taiwan)
- 14:20 Numerical Simulations for Estimating Snow Hydrological Parameters Using Multi-Temporal RADARSAT SAR Data
T. Tadono (Tokyo, Japan); K. Fukami (Tsukuba, Japan); J. Shi (Santa Barbara, CA)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 On the Use of Polarization Synthesis for the Analysis of Polarimetric SAR Images
J.-C. Souyris, P. Imbo, A. Lopes, Ph. Marthon (Toulouse, France)
- 15:40 Polarimetric Characteristics of Radar Data Acquired by X-Band Airborne High-Resolution SAR
M. Satake, T. Umebara, T. Kobayashi, A. Nadai, T. Matsuoka, S. Uratsuka (Tokyo, Japan); H. Wakabayashi, M. Shimada (Japan)
- 16:00 Low VHF SAR Data Over Pine Forest: Experiment and Modeling
P. Melon, J. M. Martinez, T. Le Toan, G. Picard (Toulouse, France); L. Ulander (Linköping, Sweden); N. Flory (Noordwijk, The Netherlands)
- 16:20 Polarimetric Analysis for Environment Applications
C. Titin-Schnaider (Palaiseau, France)
- 16:40 An Overview of Terrain Classification Using Polarimetric SAR Data
J. S. Lee, M. R. Grunes (Washington, DC)
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Session 7P6
EM Scattering and Diffraction II

Thursday PM, 13 July 2000
Ballroom A

Chaired by A. Bossavit and E. Arvas

- 13:00 Radiation Scattered by a Multilayered Chiral Object of Arbitrary Shape: Green Dyadics Representation
Y. Huang, L.-W. Li, M.-S. Leong (Singapore)
- 13:20 Scattering from a Multilayer Chiral Sphere
T. Buber, E. Arvas (Syracuse, NY)
- 13:40 New Iterative Process Applied to Diffraction by Cylinders
N. Lucanu (Iasi, Romania); F. Surre, T. P. Vuong, H. Baudrand (Toulouse, France)
- 14:00 An Approximation for Plane Wave Scattering on Finite non-Circular Cylinders
T. Rother, S. Havemann (Wessling, Germany)
- 14:20 X-Wave Diffraction by a Perfectly Conducting Wedge: A Time-Domain Uniform Theory of Diffraction Solution
A. M. Attiya, E. El-Diwany (Giza, Egypt); A. M. Shaarawi (Cairo, Egypt); I. M. Besieris (Blacksburg, VA)
- 14:40 Reduction of Radar Cross-Section Using Surface Shaping
W. Wasylkiwskyj (Washington, DC)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Scattering by a Circular Cylinder with Arbitrary Surface Impedance
A. Yasar, C. Utku, I. Akduman (Istanbul, Turkey)
- 15:40 Multiple Penetration of an E-Polarization Plane Wave through Multiple Cylindrical Apertures
W.-Y. Yin, L.-W. Li, T.-S. Yeo, M.-S. Leong (Singapore)
- 16:00 Atomic Model of a Scatterer
H. Hosono, T. Hosono (Tokyo, Japan)
- 16:20 Galerkin's Method for the Solution of Electromagnetic Wave Diffraction by a Dielectric Wedge
V. I. Kas'anova (Almetjevsk, Russia); R. N. Sukhov (Kazan, Russia)
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Session 7P7
RF, Microwave, and Millimeter-Wave Devices II

Thursday PM, 13 July 2000

Skyline

Chaired by H. C. Han and Y. Zhang

- 13:00 A Novel Nonlinear MESFET Model
J. Y. Ma, B. L. Ooi, M. S. Leong (Singapore)
- 13:20 A Novel Approach for HBT Model Parameter Extraction
T. S. Zhou, B. L. Ooi, P. S. Kooi (Singapore)
- 13:40 Low Loss 2 GHz Parallel Diode Lineariser for Use with BJT Amplifiers
C. S. Yu, W. S. Chan, W. L. Chan (Hong Kong)
- 14:00 CPW Filters with Floating Strips
T. N. Chang, Y. H. Shiu (Taipei, Taiwan)
- 14:20 A New T/R Switch Using Resonant Method
Y. Ma, B. L. Ooi, M. S. Leong, Y. Wang (Singapore)
- 15:00 **Coffee Break (Ballroom B)**
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- 15:20 Wideband Performance Characterisation for Active Microwave Devices through Neural Networks
H. Torpi, B. A. Cetiner (Istanbul, Turkey)
- 15:40 Admittance Parameter Extraction of Short Gate Length MOSFET Including Substrate Effect for Microwave Frequency Applications
A. Goswami, A. Agrawal, M. Gupta, R. S. Gupta (New Delhi, India)
- 16:00 Characterization of the Microwave Devices with Parametric Invariance Property
O. V. Stoukatch (Tomsk, Russia)
- 16:20 Strict Calculation for Aerials-Amplifiers
V. L. Danilchuk (Novgorod, Russia)

Session 8A1
Remote Sensing and Geophysical Problems

Friday AM, 14 July 2000
Parkview

Chaired by G. H. Pettengill and E. Miller

- 8:20 Strong Radar Echoes from the Venus Highlands: Volume Scattering or Conducting Surface?
P. G. Ford, G. H. Pettengill (Cambridge, MA)
- 8:40 Telluric Planet Sounding Using Low Frequency Spaceborne Radar: Simulation of the Radar Signal
A. Herique, W. Kofman (Grenoble, France)
- 9:00 Interpretation of Seismo-Electromagnetic Phenomena
N. Gershenson, G. Bambakidis (Dayton, OH)
- 9:20 Mars Exploration by TDEM Based Measurement System
G. Tacconi, S. Pagnan, L. Minna, R. Marcialis, G. Bucci, C. Ottomello (Genoa, Italy)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 Stochastic Inversion in Ionospheric Radiotomography
T. Nygren (Oulu, Finland); M. Lehtinen, M. Markkanen (Sodankylä, Finland); E. D. Tereshchenko (Murmansk, Russia)
- 10:40 Independent Component Analysis Approach to Detect the Cosmic Microwave Background Radiation from Satellite Measurements
E. Salerno (Pisa, Italy); C. Baccigalupi (Trieste, Italy); L. Bedini (Pisa, Italy); C. Burigana (Bologna, Italy); A. Farusi (Pisa, Italy); D. Maino, M. Maris, F. Perrotta (Trieste, Italy); A. Tonazzini (Pisa, Italy)
- 11:00 Shallow Geoelectrical Studies for the Late Quaternary and Defunct Channels at Samannud Area, Nile Delta, Egypt
A.-R. Hassaneen, S. Osman, M. Abdalla, A. Ismail (Cairo, Egypt)
- 11:20 Shallow Geoelectrical Studies for Paleotopography and Archaeological Investigations at El-Simbelawein District, Eastern Nile Delta, Egypt
A.-R. Hassaneen, M. Abdalla, A. Taha (Cairo, Egypt)
- 11:40 Geophysical Studies for the Environs of the Archaeological Site of Abydos Area, Sohag Governorate, Egypt
A.-R. Hassaneen, El.-S. El-Sayed, M. Metwally (Cairo, Egypt)

Session 8A2
Phased Arrays for Mobile Communications

Friday AM, 14 July 2000

Charles B

Organized by T. B. Vu
Chaired by T. B. Vu and K. M. Wong

- 8:20 Broadband Frequency-Invariant Beamformer Using Frequency Sampling FIR
J. Marciano (Sydney, Australia); T. B. Vu (Hong Kong)
- 8:40 Smart Antennas for Broadband Access Mobile Communications
S. Ohmori (Tokyo, Japan)
- 9:00 Smart Antenna Research at City University of Hong Kong
T. B. Vu, C. M. Leung, Q. Xue, K. M. Luk (Hong Kong)
- 9:20 LMS Adaptive Array Antenna for TV Reception
K. Aoto, K. Hirasawa (Ibaraki, Japan)

Session 8A3
Radiation I

Friday AM, 14 July 2000

Charles A

Chaired by A. B. Kulkarni and F. L. Teixeira

- 8:40 Accurate Numerical Modeling of Quasi-Optical Components and Antennas with the Complex Beam as an Incident Field
S. V. Boriskina, A. I. Nosich (Kharkov, Ukraine)
- 9:00 Excitation of a Current in System from Two Mutually Perpendicular Antennas, Situated in Anisotropic Medium
N. M. Jatsenko, E. A. Jatsenko, N. A. Khizhnyak (Kharkov, Ukraine)
- 9:20 Radiation of the Linear Wire in Anisotropic Plasma
N. M. Jatsenko, E. A. Jatsenko, N. A. Khizhnyak (Kharkov, Ukraine)
- 10:00 Coffee Break (Ballroom B)**
- 10:20 System of Linear Wires in Anisotropic Plasma
N. M. Jatsenko, E. A. Jatsenko, N. A. Khizhnyak (Kharkov, Ukraine)
- 10:40 Wave Catastrophes in Propagation, Scattering and Diffraction Theory and Its Applications
A. S. Kryukovsky, D. S. Lukin, Eu. A. Palkin, D. V. Rastyagaev (Moscow, Russia)
- 11:00 Three-Dimensional Space-Time Focusings of Catastrophe Types
A. S. Kryukovsky, D. V. Rastyagaev, D. N. Chistyakov (Moscow, Russia)

Session 8A4
Free and Guided Optical Beams II

Friday AM, 14 July 2000

Somerset

Organized by S. R. Seshadri
Chaired by K. Yasumoto and S. R. Seshadri

- 8:00 Non-uniform Polarization and Partial Coherence in Optical Beams
F. Gori (Rome, Italy)

- 8:20 Power Transport by Spatially Partially Coherent Scalar and Electromagnetic Beams
P. Östlund, A. T. Friberg (Stockholm, Sweden)
- 8:40 An Examination of the Propagation Characteristics of Profiled Electromagnetic Beams in Unbounded, Homogeneous Media and through Finite Apertures
M. R. Chatterjee (Binghamton, NY); C. Cheung (Johnson City, NY)
- 9:00 Correspondence Between Standard and Elegant Hermite-Gaussian Beam Modes
S. Saghafi, C. J. R. Sheppard (Sydney, Australia)
- 9:20 Extinction and Scattering of a Guided Beam in a Hollow Dielectric Waveguide
K. Yasumoto, T. Kushta (Fukuoka, Japan); V. Kiseliow (Kharkov, Ukraine)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 Guided Optical Beams in Planar Structure with Quadratic Magneto-Optical Medium
J. Pistora, K. Postava, O. Barta, T. Kreml, F. Stanek (Ostrava, Czech Republic)
- 10:40 Nonlinear Eigenmodes in Quadratic Film Waveguides
M. Nevière (Marseille, France); S. Darmanyan (Trotsk, Russia)
- 11:00 Corrugated Waveguides as Resonance Optical Filters Used in Limited Beams
E. Popov, B. Bozhkov (Sofia, Bulgaria)
- 11:20 A Ray-Optic Analysis of Polarization Conversion by Reflection in a Thin Film Grating
S. R. Seshadri (Madison, WI)
- 11:40 Self-Pulsation and Bistable Switching in Anisotropic Photorefractive Interference Filters
G. Zartov, T. Tenev, K. Panajotov, E. Popov, R. Peyeva (Sofia, Bulgaria); H. Thienpont, I. Veretennicoff (Brussels, Belgium)

Session 8A5 Advances in Radar Techniques

Friday AM, 14 July 2000

Riverfront

Chaired by W. Wasylkiwskyj and S. J. Anderson

- 8:40 RCS Calibration Buoy Design for HF Radar Applications
S. J. Anderson, M. A. Tyler (Salisbury, Australia)
- 9:00 Implementation of Sequential Post Beam Steering (SPBS) on Classical DBS ST Radars
D. Hilal, M. Crochet, H. Luce (Lagarde, France)
- 9:20 Radar Equations of Quasistationary Electric Field
J. Kodl (Nuerenberg, Germany); V. Zima (Kobylisy, Czech Republic)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 A New 20 MHz Digital-Beamforming Clear-Air Radar
J. A. Tozza, C. Hanuse (Lagarde, France)
- 10:40 HF Skywave Radar Polarimetry: A Progress Report
S. J. Anderson (Salisbury, Australia)
- 11:00 Optimization of Receiver Structure for Ultra-Wideband Pulse Subsurface Geo-Radar
S. P. Lukjanov, O. V. Stoukatch (Tomsk, Russia)

Session 8A6 Kriging in Electromagnetics

Friday AM, 14 July 2000

Ballroom A

Organized by L. R. Cander and W. Tabbara
Chaired by W. Tabbara and M. Levy

- 8:40 Statistical Interpolation by Kriging
H. Wackernagel (Fontainebleau, France)
- 9:00 Statistical Analysis of the End Voltage of a Transmission Line Illuminated by a Plane Wave at Random Incidence
V. Rannou, F. Brouaye, M. Hélier, W. Tabbara (Gif-sur-Yvette, France)
- 9:20 Statistical Analysis of the Influence of Mobile Phone Orientation on Specific Absorption Rate: The Kriging Approach
S. Deshayes, J. Wiart (Issy-Les-Moulineaux, France); W. Tabbara (Gif-sur-Yvette, France)
- 10:00 **Coffee Break (Ballroom B)**
- 10:20 The Kriging Method of Ionospheric Parameters Instantaneous Mapping
I. Stanislawska, G. Juchnikowski (Warsaw, Poland); L. R. Cander, A. Vernon (Didcot, United Kingdom); P. A. Bradley (Slough, United Kingdom)
- 10:40 Kriging Contouring Technique for TEC Mapping over Europe
L. R. Cander, A. Vernon (Slough, United Kingdom); P. A. Bradley (Berks, United Kingdom)
- 11:00 Short Term Ionospheric Forecasting of foF2, M(3000)F2 and TEC over Europe
L. R. Cander, M. F. Levy, M. I. Dick (Didcot, United Kingdom); I. Kutiev, P. Muhtarov (Sofia, Bulgaria)

Session 8P1 Computational Electromagnetics and Optics: Methods and Applications

Friday PM, 14 July 2000

Parkview

Organized by H. C. C. Fernandes

Chaired by H. C. C. Fernandes and M. T. C. Silva

- 13:20 Coupling Analysis, Thick Edge-Coupled and Asymmetric Unilateral Fin Line
H. C. C. Fernandes (Natal, Brazil)
- 13:40 A Photonic CAD Package at Graduate and Undergraduate Courses
H. C. C. Fernandes (Natal, Brazil)
- 14:00 An Efficient Analysis of Superconducting Microstrip Patch Antenna Arrays
H. C. C. Fernandes (Natal, Brazil)
- 14:20 Theoretical Investigation of Microwave Magnetoelastic Pulse Propagation in Ferrite-Dielectric Structure
S. V. Meriakri (Moscow, Russia); H. C. C. Fernandes (Natal, Brazil)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 Matched Numerical Dispersion for 3D FDTD Plane Wave Injector
C. Guiffaut, K. Mahdjoubi (Rennes, France)

- 15:40 Effect of Spin on the Cyclotron Frequency for an Electron
G. Salesi, E. Recami, L. C. Krely (Campinas, Brazil)
- 16:00 Wide-Angle Finite Difference Beam Propagation Analysis of Nonlinear Optical Waveguides
B.-H. V. Borges, A. C. Cesar, R. S. Flaminio (São Carlos, Brazil)

Session 8P2
Classification of Filmed Substrate Defects Based on Light Scattering Analysis

Friday PM, 14 July 2000

Charles B

Organized by Yu. A. Eremin and J. C. Stover
 Chaired by Yu. A. Eremin and J. C. Stover

- 13:00 The Practical Use of Numerical Scattering Models in the Semiconductor Industry
J. C. Stover, C. A. Scheer, L. Wende (Westwood, MA)
- 13:20 Laser Beam Scattering by a Scratch on the Wafer Surface
V. I. Ivakhnenko, J. C. Stover (Westwood, MA)
- 13:40 Modeling of Laser Beam Scattering by Large Defects on the Wafer Surface
V. I. Ivakhnenko, C. A. Scheer (Westwood, MA)
- 14:00 The Importance of Accurate PSL Calibration for Defect Identification and Sizing
J. C. Stover, C. A. Scheer (Charlotte, NC)
- 14:20 Analysis of the Scattering Properties of Oxide-Coated Particles at Substrate Surface
Yu. A. Eremin, N. V. Grishina (Moscow, Russia)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Scattering Properties of Non-Axial Symmetric Structures at a Filmed Substrate
Yu. A. Eremin (Moscow, Russia); J. C. Stover (Westwood, MA)
- 15:40 Wave Scattering by Obstacles and Gratings in Stratified Media
A. G. Kyurkchan, S. A. Manenkov, A. L. Soloveitchik (Moscow, Russia)
- 16:00 Scattering by an Impedance Inclusion at the Plain Interface of Two Media
S. A. Manenkov (Moscow, Russia)
- 16:20 Applying Mean-Field Theory in Scattering from Microroughness of Filmed Wafers
V. V. Lopushenko (Moscow, Russia)
-

Session 8P3
Radiation II

Friday PM, 14 July 2000

Charles A

Chaired by I. M. Besieris and S. F. Farida

- 13:00 Power Transfer from a Current Carrying Loop to an Eddy Current Region
E. Baum (Fulda, Germany); G. Mrozyński (Paderborn, Germany)
- 13:20 Electromagnetic Localized Wave Edge Modes
I. M. Besieris (Blacksburg, VA); A. M. Shaarawi (Cairo, Egypt); A. M. Attiya, E. El-Diwany (Giza, Egypt)

- 13:40 A Method for Direct Evaluation of the Electromagnetic Field in Non-Inertial Systems
M. H. Marcal (Lisboa, Portugal)
- 14:00 Transient Excitation of Three Coupled Wires in a Two-Layer Configuration
S. H. J. A. Vossen, A. G. Tijhuis (Eindhoven, The Netherlands); E. S. A. M. Lepelaars (The Hague, The Netherlands); A. P. Z. Zwamborn (Eindhoven, The Netherlands)
- 14:20 Angular Superpositions over Azimuthally Dependent Pulses: An Efficient Approach to the Design and Analysis of X Waves
A. M. Shaarawi (Cairo, Egypt); I. M. Besieris (Blacksburg, VA); A. M. Attiya, E. El-Diwany (Giza, Egypt)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Electromagnetic Fields of a Radial Cylindrical Current Sheet
K. Heidary (Normal, AL)
- 15:40 Waveguide Fed Slots Radiating into Parallel Plate Flanges
P. V. Hunagund, S. F. Farida, R. M. Vani, S. N. Mulgi, P. M. Hadalgi, G. Jyoti, G. M. Girija (Karnataka, India)
- 16:00 Radiation from a Rectangular Waveguide with Ferrite and Chiral Flanges
P. M. Hadalgi, S. F. Farida, P. V. Hunagund, S. N. Mulgi (Gulbarga, India)
- 16:20 Electromagnetic Storms, Whirls, Tornadoes, and Missiles
G. N. Borzakov (Minsk, Belarus)
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Session 8P4
Novel Mathematical Methods in Electromagnetics II

Friday PM, 14 July 2000

Somerset

Organized by Yu. V. Shestopalov and K. Kobayashi
 Chaired by K. Kobayashi and Yu. V. Shestopalov

- 13:00 EM Plane Wave Scattering by Cracks
H. Shirai (Tokyo, Japan); R. Sato (Niigata, Japan)
- 13:20 Complex Riemannian Metric and Absorbing Boundary Conditions
M. Lassas, J. Liukkonen, E. Somersalo (Helsinki, Finland)
- 13:40 Plane Wave Diffraction by a Thin Material Strip
E. I. Veliev (Kharkov, Ukraine); S. Koshikawa (Omiya, Japan); K. Kobayashi (Tokyo, Japan)
- 14:00 Connection of Scalar Field to Condensed Node Spatial Network for Vector Potential and Hertz Vector
N. Yoshida (Sapporo, Japan)
- 14:20 New Galerkin Method for Electromagnetic Screen Diffraction Problem in R3
Y. G. Smirnov (Penza, Russia)
- 15:00 Coffee Break (Ballroom B)
- 15:20 Mathematical Modeling of a Three-Dimensional Inner Electromagnetic Problem
A. B. Samokhin and A. N. Bespalov (Moscow, Russia)
- 15:40 Bloomed Optics Principle of the Anti-Radar Coating Synthesis for the Finite Metal Bodies
V. F. Apel'tsin (Moscow, Russia)

- 16:00 Numerical Method of Radiowave Scattering Analysis from Turbulent Jet Created of Space Vehicle
V. G. Spitsyn (Tomsk, Russia)
- 16:20 Are Saturn's Rings Superconducting? (What Electromagnetic Simulation Can Give Us an Answer?)
A. Yu. Pospelov, V. V. Tchernyi, S. V. Girich (Moscow, Russia)

Session 8P5
Remote Sensing of the Environment

Friday PM, 14 July 2000

Riverfront

Chaired by D. H. Staelin and P. W. Rosenkranz

- 13:00 Enhanced Active Imaging through Turbid Media Using Polarised Light
P. C. Y. Chang, J. G. Walker, K. I. Hopcraft, E. Jakeman (Nottingham, United Kingdom); D. L. Jordan, G. D. Lewis (Malvern, United Kingdom)
- 13:20 The Inversion Angle in Polarized Surface Reflectance
W. G. Egan (Jamaica, NY)
- 13:40 Novel Three-Point Calibration of a Microwave Radiometer (NAST-M)
R. V. Leslie, W. J. Blackwell, D. H. Staelin (Cambridge, MA)
- 14:00 Consideration of Uncertainties in the Estimated Calibration Response of Radiometer Systems
P. Racette (Greenbelt, MD); R. Lang (Washington, DC)
- 14:20 Modeling Microwave Surface Emissivity for the Atmospheric Sounder Retrieval Problem
P. W. Rosenkranz (Cambridge, MA)

- 14:40 Bistatic Scattering of GPS Signals from Sea Surfaces
C.-Y. Hsieh (Kaohsiung, Taiwan)
- 15:00 **Coffee Break (Ballroom B)**
- 15:20 The Backscatter Behaviour of Power Lines at Millimeter Wave Frequencies
H. Schimpf, H. Essen, S. Boehmsdorff, G. Biegel (Wachtberg-Werthhoven, Germany)
- 15:40 Particle Shape Measurement Through Polarisation Correlation
J. G. Walker, K. I. Hopcraft, E. Jakeman (Nottingham, United Kingdom)
- 16:00 Response of Microwave on Paddy by X-Band Scatterometer for Remote Sensing
D. Singh, Y. Yamaguchi, Y. Yamada (Niigata, Japan); K. P. Singh (Varanasi, India); S. K. Sharan (Bilaspur, India)
- 16:20 A Three-Dimensional Radiative Transfer Model Applied to Radar Backscatter of Vegetation Covers
G. Picard, T. Le Toan (Toulouse, France); N. Flouri (Noordwijk, The Netherlands); J. M. Martinez, P. Melon (Toulouse, France)
- 16:40 Improved Combined Radar/Radiometer Instantaneous Rain Retrievals
Z. S. Haddad (Pasadena, CA)
- 17:00 Experimental Measurements of Water Surface Slopes by Microwave Radar
V. Yu. Karaev, M. B. Kanevsky, E. M. Zuikova, V. Yu. Gol'dblat, V. I. Titov (Nizhny Novgorod, Russia)

PIERS 2001

Progress in Electromagnetics Research Symposium
July 18-22, 2001

Cosmosquare International Education
and Training Center, Osaka, JAPAN

CALL FOR PAPERS

The Progress in Electromagnetics Research Symposium (PIERS 2001) will be held on July 18-22, 2001 at the Cosmosquare International Education and Training Center, Osaka, Japan.

PIERS provides an international forum for reporting progress and recent advances in the modern development of electromagnetic theory and its new and exciting applications. Suggested topics are listed below, but consideration will be given to papers on other subjects.

Symposium Organization

PIERS Chairman: J. A. Kong, MIT, Cambridge, MA, USA

PIERS 2001 General Chairman: H. Ogura, Kinki University, Japan

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Y. V. Shestopalov, Taiwan: K. S. Chen, Ukraine: A. I. Nosich, UK: J. M. Arnold, P. D. Smith
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PIERS 2001 Symposium Committee: T. Hinata, M. Ando, M. Hashimoto, K. Kobayashi, M. Koshiba, T. Shiozawa

Sponsorship: The Electromagnetics Academy

Suggested Topics

1. EM theory and nonlinear electromagnetics
2. Computational Electromagnetics
3. Fast iteration and large scale computation
4. Asymptotic methods and high frequency techniques
5. Ultra-wideband, short-pulse electromagnetics
6. Time-domain electromagnetics
7. Scattering and diffraction
8. Periodic Structures
9. Wavelet techniques in electromagnetics
10. Neural network techniques in electromagnetics
11. Rough surface scattering
12. Wave scattering and imaging in random media
13. Inverse scattering
14. Electromagnetic interaction with natural media
15. SAR and SAR interferometry
16. Polarimetric radar sensing
17. Subsurface detection technology
18. Radar applications for atmosphere and ionosphere
19. Remote sensing of the earth, ocean and atmosphere
20. Signal processing in remote sensing
21. Composite, complex and fractal media
22. Material measurements
23. Tropospheric and ionospheric propagation
24. Electromagnetic precursors of earthquakes
25. Propagation at radio communications
26. Antenna theory and measurements
27. Microstrip and printed antennas
28. Mobile antennas
29. Photonics, nonlinear optics and devices
30. Optical sensors and applications
31. Near Field Optics
32. New LED technology and applications
33. Microwave and optical wave interactions
34. Microwave and millimeterwave circuits
35. Advances in MMIC
36. Waveguiding structures and discontinuities
37. Superconducting electronics
38. Electromagnetic compatibility
39. Medical applications and biological effects
40. Others

DEADLINE: ONE-PAGE ABSTRACT MUST BE RECEIVED BY DECEMBER 1, 2000

Authors are invited to submit an original (camera ready) and three copies of a one-page abstract of no less than 250 words. The abstract should explain clearly the content and relevance of the proposed contribution. No acknowledgments should be included. On a separate page list (1) title of the paper, (2) name of the author, (3) affiliation, (4) complete mailing address, (5) telephone number, (6) fax number, and (7) E-mail address of each coauthor. Please identify the corresponding author as well as the presenting author. Send your abstracts by mail; do not send via facsimile. If possible, please also send above list via E-mail to piers01@eeecs.kumamoto-u.ac.jp. Each presenting author is limited to presenting no more than three papers.

PIERS 2001

Progress in Electromagnetics Research Symposium
July 18-22, 2001

Cosmosquare International Education
and Training Center, Osaka, JAPAN

Abstract guidelines: Abstracts are to be submitted in the English language, typed on one single-spaced 8.5 x 11 inch or A4 white paper. Please use 12 point Times Roman or an equivalent serif typeface, set all margins to 25mm (1 inch), set paragraph indentation to 3.5mm (0.14 inch). Type title in bold, centered at the top. Below title, center name of the author(s) with affiliation and complete mailing address. Left and right justify recommended. On the reverse side of the original and all copies, please indicate (in PENCIL) the topic area (not the number) in which the paper should be placed (see topic list) or the name of the session organizer, if applicable.

ACCEPTANCE NOTIFICATION BY JANUARY 31, 2001 PRESENTING AUTHOR MUST PRE-REGISTER BY MARCH 7, 2001

Acceptance notification will be mailed to the corresponding author of the submitted paper by January 31, 2001. Each presenting author is required to register in advance by March 7, 2001. A non-refundable pre-registration fee of US\$350 must be sent in by March 7, 2001.

Abstract(s) and inquiries should be directed to:

Abstract(s) and inquiries for the scientific program:

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ADVANCE PROGRAM AND INFORMATION WILL BE SENT BY APRIL 20, 2001

Registration: Travel, lodging, registration and local information will be mailed with Advance Program by April 20, 2001. The advance registration fee for all participants including session chairpersons and authors is US\$350 if payment is received before May 31, 2001. After this date and during the meeting, the registration fee will be increased to US\$400. The fee includes the Symposium program and proceedings, attendance at all technical sessions, refreshments and the opening reception.

Venue: Cosmosquare International Education and Training Center (CIETC), Osaka, is a full-scale, integrated training center with lodging accommodations in the Osaka Bay Area, and provides an ideal site for the Symposium. In addition to 28 conference rooms equipped with advanced audiovisual systems, this 21-story building offers lodging accommodations of 320 rooms at specially reduced rates (7,500 yen for a single with bath and 14,000 yen for a twin with bath). Hotels of various classes are also located in the vicinity of CIETC. CIETC is easily accessible from Kansai International Airport by Airport Limousine Bus or by railways and subways. Osaka, 3 hours by Shinkansen (bullet train) or 1 hour by air from Tokyo, is Japan's second-largest city and the commercial and industrial hub for western Japan. Kyoto, Nara, and Kobe, scenic and historic cities, are located close by for one-day sightseeing trips from Osaka by railways. A social program including sightseeing tours will be planned during the Symposium. The world-famous Gion Festival in Kyoto with more than a 1,100-year history, held during July 1-31, culminates on July 16 with Yoiyama Festival and July 17 with Yamaboko Junko Festival, just before the Symposium, when gorgeously decorated floats are paraded along the streets (www.pref.kyoto.jp). In addition, Kobe Festival is held during the Symposium. After the Symposium, participants may also enjoy Tenjin Festival held in Osaka during July 22-25, which is known as one of the three major festivals in Japan. On July 25, the Riku Togyo religious procession begins at Tenmangu Shrine and reaches the dock to the north of Tenjin Bridge over Dojima River. A highlight of Tenjin Festival is Funa Togyo, a boat procession, which accompanies various traditional performances together with gorgeous fireworks (www.tourism.city.osaka.jp).

Updated information on World Wide Web: <http://www.icc.titech.ac.jp/piers2001/>

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If you are interested in organizing a session for a future PIERS, please complete and return this survey form.

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() I am interested in organizing and chairing a session. The proposed title is

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B. For PIERS 2002 to be held in USA:

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NOTES

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